



Ottawa Amateur Radio Club

Groundwave

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Check out our Web Page: www.oarc.net

June 2007

Well, this is the last Groundwave before summer and so there are several events of which to remind you. Firstly, the Annual General Meeting takes place on Wednesday, June 13 at 19:30 at City Hall. See the Notice of Elections on page 5. We are looking for new blood to steer the good ship (to mix my metaphors). Secondly, Field Day is June 23-24. See the details on page 6 and be sure to let Harold know you're coming. Thirdly, don't forget the RAC Canada Day Contest on July 1. Details on page 6 and the RAC web site. Fourthly, the OARC Hamfest and RAC AGM and Technology Update on Septem-



ber 1. See the details on page 10. And fifthly, there is a transmitter hunt scheduled for Saturday, May 26. Contact Mike, VE3FFK, for details.

The City of Ottawa has released a new version of its draft bylaw including antenna and tower restrictions. See the city web site for details of this latest version (http://www.city.ottawa.on.ca/residents/bylaw/zoning/index_en.html).

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**JUNE MEETING 7:30 pm, June 13th
in the Honeywell Room at Ottawa City Hall**

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Articles may be submitted for use in this publication provided that they portray events or activities that promote Amateur Radio. Letters and comments are also welcome. Submissions may be made by mail addressed to the Editor care of the OARC, or by e-mail to "ve3igi@rac.ca". Deadline for submissions occurs three days after the regular monthly meeting of the OARC.

Please support your local radio organisations. They support you!

Club Information

The Ottawa Amateur Radio Club Inc. is an association of Radio Amateurs devoted to the promotion of interest in Amateur Radio communications in the National Capital Area and to the advancement and achievement of club members.

Regular Meetings of the OARC Inc. are held on the second Wednesday of each month (except July and August) in the Honeywell Room (2nd floor of the Old Teacher's College) of Ottawa City Hall (formerly Regional Municipality of Ottawa Carleton Headquarters) on Lisgar Street. Meetings commence at approximately 19:30 hours. Further details about each meeting is elsewhere in this publication.

Executive Meetings of the OARC Inc. are normally held on the first Wednesday of each month at 19:30 hours. Contact the President to confirm the date, time and place of the next meeting.

The CAPITAL CITY FM Net meets every Monday at 20:00 hours on the club repeater **VE2CRA** to pass traffic and to make announcements of interest to Amateurs in the National Capital Region.

The SWAP Net is a service provided and conducted by Ed Seib, VA3ES. This feature appears on the Capital City FM Net. To list items and make inquiries, call Ed at 613-738 8924 or e-mail him at va3es@rac.ca. Also available on the web: <http://www.igs.net/~swap>.

The POT-HOLE Net is a SSB/HF net sponsored by the Ottawa Valley Mobile Radio Club and is conducted every Sunday at 10:00 hours on **3.760 MHz**. All amateurs are welcome to check in.

The POT-LID CW Net is an informal slow-speed CW net sponsored and conducted by Ed Morgan, VE3GX, and meets every Sunday, except during July and August, at 11:00 hours on **3.620 MHz**, to promote interest in CW and CW procedures.

The QCWA CHAPTER 70 Net meets every Thursday evening at 20:00 hours on repeater VE3TWO **147.300+**. You do not have to be a QCWA member to participate.

The Ottawa Valley VHF/UHF SSB Net is sponsored by the West Carleton ARC. Look for it every Tuesday night (except the first Tuesday of the month) around 21:00 on **144.250**, (roll calls after net on 50.150, 432.150, 222.150, and 1296.100.) Horizontal polarization is preferred.

The Ottawa Amateur Radio Club bulletin "Groundwave" is published and distributed to club members by mail. Publication dates may vary but it is hoped that the bulletin arrives at its destination before the events listed in it have expired. The bulletin is not published for July and August when meetings do not occur. Every effort is made to provide accurate information in the bulletin, however we are all human and mistakes can be made. The OARC accepts no responsibility for any damages that may result from this. The opinions expressed in this bulletin are those of the author.

Voice (VHF) 146.94/146.34 100Hz output tone
 (UHF) 443.300/448.300

VE3TVA Amateur Fast Scan Television Repeater
 Video/audio beacon & input 439.25 MHz (audio sub. 443.75)
 Video/Audio output 914 MHz (FM)

IRLP Node 2040 146.94/146.34 (VE2CRA/VE3RC)
 (Code 411 for info) (Code 204 for activity)
 (Code 88 for time)

For further information please contact the Repeater Chair.

Note: The IRLP link is not connected to ECHOLINK. Please do not try to connect using the alpha keys on your keypad. It just confuses the operator.

Note: The IRLP link is disabled during the Capital City Net each Monday. It is disabled from 2000 to 2145 Mondays except for May to August when the link is disabled from 2000 to 2020.

VE3TEN

Tuning in the beacon so that it makes sense requires you tune to **28.175** on cw and read the tone that is there . The spaces between the elements are the higher tone. If that doesn't work, tune to **28.175.28** on lower sideband for better results.



April Minutes

The topic for the evening's presentation was fox or transmitter hunting presented by two club members. The first to speak was Ian Jeffrey, VE3IGJ. He spoke on the theory of transmitter hunting and various methods employed to help find the fox.

Then Mike Kelly, VE3FFK, spoke on the practical aspects of fox hunting including tactics. He also had a few examples of fox hiding to share. He demonstrated some tools of the trade (hardware) and described their use, setup, and deployment in various situations. Advantages and disadvantages of different equipment for different modes of travel - walking, bike mobile, automobile, vans—were described.

We then we went from the meeting room looking for an actual transmitter that had been previously hidden. Various hunting tools and techniques were employed by Mike and some of meetings members and guests. Eventually the bunny was found and we went back inside to resume the meeting.

Next we had an update on the latest news on the antenna bylaw from the City of Ottawa. The bylaw is not yet final. Dave Green spoke to the group and is interested in our comments regarding the proposed bylaw.

Dave Goodwin reminded the group of the RAC AGM which will be held at our fall Hamfest.

Ed Sich, the Hamfest manager, is looking for volunteers for the event.

Harold reminded people of Field Day and is looking for volunteers and equipment.

The 50/50 draw was won by Diane Bruce, VA3DB. The value was \$ 24.50. We also drew for a computer software manual won by Chris Gibran (VE3KRW).

dear ian if i have left any thing out pls feel free to edit

Alan Macphee, VE3ZTU

Dates to Remember

2007

- Feb. 10,11 Canada Ski Marathon
- Apr. 11 Homebrew Night
- Jun. 13 OARC AGM and Elections
- Jun. 23,24 Field Day
- Jul. 1 RAC Canada Day Contest
- Sep. 1 Hamfest, RAC AGM, and Forum
- Sep. 30 Membership Renewal Deadline
- Nov. 1 Joe Norton Award Subm. Due
- Dec. 29 RAC Winter Contest

Hamfest and RAC AGM

The 11th Annual Ottawa Amateur Radio Club Hamfest takes place Saturday, September 1, 2007 at the Carp Fairgrounds. Door are open from 10:00 to 13:00 local time (14:00 to 17:00 Zulu).



The OARC is proud to sponsor the RAC Annual General Meeting, Forum and Technology Update. This highly informative event follows immediately after the close of the Hamfest at 1 pm. We are very fortunate to have Dave Goodwin (VE3AAQ), RAC's Ontario North/East Director, as Moderator.

Good News

This week saw a rise in sunspot numbers, with the average daily value up by more than 11 points to 29.3. On Wednesday, May 16, the daily sunspot number was 56. That's the highest daily reading since 162 days earlier on December 5, 2006, when the sunspot number was 59. This week's average sunspot number was the highest since the reporting week of January 4-10, 2007.



mk's Words

For me, the event of the month has to have been the Tour Nortel. This year marked a few firsts. It was the first year that EMRG / Ottawa ARES was in charge of the radio end of things, rather than just a "pick up" team of volunteers. There seemed to be more rookies than usual working the event this year, so they all had firsts of one sort or another. Some of us got to try out new antennas and supports. One new twist this year was operation on simplex, as well as the usual repeater routine. It was interesting to find out what other simplex stations on the course I could hear, and what ones I could work. I was working with Dave, VE3KL for the first time. It was interesting to see how he puts his 2m antenna into the sky. I'm looking forward to seeing his 5 pound 20 metre beam going up at some later date. Maybe we will all see how that works next April during homebrew night. Every time out there is something interesting to be learned. Overall, the event seemed to go pretty well for the cyclists too, with weather being extremely cooperative. That means somewhere between hypothermia and heatstroke, with enough of a wind to keep the bugs away, but not so much that the riders thought they were going uphill the whole time. Mostly everything seemed to work out just fine.

So what was the highlight of your month in radio? Maybe for you it was the Smiths Falls fleamarket. Although I wasn't there (I save my loonies for the big one in Carp) I heard that a lot of good stuff changed hands. I hope you got / sold everything you had hoped. Maybe it your big event for the month was a contest or your first radio/camping trip of the season. So why don't we hear about it in the Groundwave? Let us know what you are doing.

The club project seems to be winding down. I don't know whether the urge to pick up a soldering iron drops off once the NHL playoffs start, or it is the greening of the lawn or just the feeling of going outside without having to suit up that does it. For whatever reason, nobody has expressed a preference for a date to go back to work on the project, yet I know that there are a bunch of people who have mostly finished kits in

boxes, waiting to be finished. While I hate to think of yet another project sitting in a basement at 80% complete, I also don't want to try to pick up the loose ends next fall. So if you want to finish your kit, say something and maybe we can get some of these wrapped up before field day.

There is a transmitter hunt scheduled for Saturday May 26. It has been too long since I have been in on one of these, so I plan on getting out there one way or another. Those of you who were at the last OARC meeting saw some of the toys we use, but it doesn't take a lot of fancy hardware to win. As was stated, it has more to do with the equipment you keep between the ears, so don't let a lack of hardware stop you. If you don't want to set out on your own, show up anyway, since hunters are always interested in showing newcomers how they hunt the wascawwy wabbit.

I don't know where the time goes, but it seems like last week we were walking around in slush. Now it is just a few weeks from field day. While I think the ARRL tries to do too much with field day (emergency preparedness, public outreach, contest, social event (did I miss any?)) it has always been a heap of fun for me. If you hear Harold asking for volunteers or equipment, or even if you don't, come on out and play with us. Even if you are just there for the food, it's a great time.

Anyhow, time to go. The soldering iron is warmed up. (and so is the weather, finally)

73.. mk VE3FFK

Laws of the Natural Universe

Variation Law

If you change lines (or traffic lanes), the one you were in will start to move faster than the one you are in now.

Law of the Workshop

Any tool, when dropped, will roll to the least accessible corner of the workshop.



Brainteaser

This month's puzzle:

Out of Time

Faced with her own termination, agent Sam Smart has to figure out a way to time exactly nine minutes, but she has no watch or any usual timing device. All that she has are two hourglasses - one that takes four minutes to empty and one that takes seven minutes to empty. Can Sam use the hourglasses to time exactly nine minutes, or is she doomed?!... Tune in next time for the adventures of agent Sam Smith... if she's still around.

Send your answers to editor@oarc.net.

Last month's puzzle:

Time

How many minutes after 4 o'clock do the hour hand and minute hand of a clock coincide?

Congratulations to Richard Hagemeyer, VE3UNW, who got the answer. To quote him:

"Assuming an analogue clock driven by a spring, not a crystal, 21 minutes and 49.090909 seconds after 4, the hour hand and the minute hand will be (approximately) aligned."

Let x be the number of minutes after 4 o'clock when the hands coincide. Then,

Minute hand angle = $x / 60 * 360$ (60 minutes per revolution)

Hour hand angle = $120 + x / 60 * 30$ (4 o'clock is 120 degrees plus 30 degrees per hour)

Solving for minute hand angle = hour hand angle gives $240 / 11$ or 21 9/11 minutes.

QED

Elections

OARC Board of Directors Election

Bylaw Number 4 of the OARC Corporation provides: "that the members shall elect a Board of Directors at the Annual General Meeting. The Board will include President, Vice-President, Secretary, and three Directors-at-large. The immediate past President shall be a member of the Board. In addition, the Editor of the Groundwave, and the Chairman of the Repeater Committee, who shall be appointed by the Board, are members of the Board. ... The whole Board shall be retired at each annual meeting, but shall be eligible for re-election."

The Bylaws are silent regarding a nominating committee, but the practice has been for a member of the corporation to act as a committee to determine which members of the Board wish to retire, and to seek replacements from among the membership, as may be needed. As your nominating committee for this year, I will be pleased to receive your nominations before the June meeting.

These are the nominations at present.

- President: Dave Green, VE3TLY
- Vice-President: Greg Danylchenko, VE3YTZ
- Secretary: open
- Director: Wayne Getchell, VE3CZO
- " Gord Holmes, VE3GFH
- " Mike Kelly, VE3FFK
- " Al MacPhee, VE3ZTU

Other Board Members include Groundwave Editor, Treasurer, and Repeater Chairman who are appointees of the Board and not elected.

The Annual General Meeting takes place on Wednesday, June 13 at 19:30 at City Hall.

Ernie Brown, VA3OEB
Nominating Committee



Canada Day Contest

A Short Introduction to the Repeater Audio Archive Project

This project was inspired by bad audio. We've all heard some over the air. Almost always, we know exactly what is wrong and exactly how to fix it, at least, that's what we convince ourselves to believe.

I heard some bad audio during the last Canadian Ski Marathon. I was (fortunately) not in a position to break in and offer my wisdom, but I did have a computer and Internet connection. That's it! I would record some offending audio and email it to the station. Then they could hear what I am hearing and take corrective action.

What a wonderful idea! Well, that was about three months and about eighty hours of effort ago.

How the system was developed from the beginning or how it changed along the way is no longer important. What it looks like now and where it might develop is the subject at hand.

Although this is a radio project, most of the "heavy lifting" is done by software on couple of computers running Linux. I followed a UNIX approach to the design which basically means that a series of smaller programs will be used and each will do some work and pass the data on to the next program. As well, a client/server approach was used; this is where one computer acts as a client and feeds data (audio) to another computer acting as a server. The client and server do not have to be separate, but certain design issues are more easily solved by assuming they are different machines running in different places.

The program which forms the foundation for the entire project is called *listener*. *This program will monitor a sound source for audio and record when audio is present. It has numerous other features, so if you run *NIX (this means any variant of Unix or Linux), check it out.*

(Continued on page 7)



For the first time in the history of Radio Amateurs of Canada, plans are underway for the RAC ARES/NTS to be on the air simultaneously in every Section of the RAC Field Organization using their respective official RAC call sign. This "first" will take place during the annual RAC Canada Day Contest on July 1, 2007, and RAC Field Services members are invited to participate. For further information see the May/June issue of The Canadian Amateur magazine or contact your Section Manager.

Field Day 2007

OARC Field Day 2007

When: Saturday June 23, 2007 to Sunday June 24, 2007

Time: Setup starts about 9:30am

Operations start at 14:00

Shutdown (Sunday): 14:00

Location: 175 Main Street by the river
(behind the Residences)

All are welcome.

As always we are looking for equipment. If you have some equipment you wish to loan to us for the weekend, contact Harold (VA3UNK) at 613-722-9810 or his callsign AT rac.ca

If you wish to participate on the weekend you can let Harold know.

Any other questions or concerns, contact Harold by phone or email.



(Continued from page 6)

As seen in the data flow diagrams, *listener* is only used at the beginning of the process. The recorded sound then passes through *SoX*. *SoX* is known as the “the swiss army knife of sound processing programs” and can do useful things like convert sound formats, remove silence and do additional filtering. A small script gets this done and prepares the file for transmission to the host computer.

At this point we have a smaller, filtered, compressed mp3 file to send via *rsync*. The *rsync* client communicates with the *rsync* server and places the file in the correct directory on the host. The pre-process feature of *rsync*, allows for the creation of the directory if it doesn't exist and the post-process feature allows a *PHP* program to properly add the data describing the sound file to a *postgresql* database.

This is the entire process from hearing the audio on air to making the audio available to a web server for anyone to browse.

All the web pages on the RAAP website are dynamically created by *PHP* which reads the *postgresql* database to decide what information needs to be displayed. This means the latest information is available to the user. The user navigates, from a station selection to a year, month, day and finally an hour selection. Within the hour selected, all the sound files available are presented to the user. The page also shows the user the duration and file size for each available sound file.

Next Steps

There are a number of improvements I'd like to pursue. The hardware front-end needs some work. I currently use a dual-band radio capable of V-V operation. I believe this contributes to cross-talk, causing the *listener* program to kick in when it shouldn't (these mostly get eliminated by software). Using separate and cheaper radios should fix this problem. I'd also like to use some form to AVC (Automatic Volume Control) to adjust the audio levels to what the sound card expects. Again this issue is currently mitigated using software AVC. The hardware AVC circuit can also provide some electrical isolation between the radios and the computer, proba-

bly a good idea.

On the software side, I'd like to try using a second (or even third and fourth) audio card to accept audio from more than two sources. Some research in this area suggests that four sound cards would work fine. The client-server architecture allows for multiple clients to connect and store audio in a central location.

This raises interesting possibilities of a “clearing house” for amateur repeater audio. Twenty-four hours of audio take about 300Mb of space. VE2CRA has about twenty hours of audio a month and VE3OCE has about ten hours of audio. I think other local repeaters (VE3TWO and VE3RIX) see more “action”. Assuming a busy repeater at 1Gb per month, that is only 12Gb per year. The current price for a hard drive is \$158 for a 500Gb drive. Even allowing for disk mirroring (RAID 1), this means a years worth of data would cost \$8.75! 500Gb would hold over forty years of data! The hard drives would surely fail before they filled. On the other hand, if forty repeaters stored their audio in this fashion, a year's worth of live audio data could be stored on a 500Gb raid array for under \$10 a repeater.

The power of technology is progressing, it's time to join in.

I wish to acknowledge and thank the Monday night Montana's gang for their ideas and encouragement. Without them, I would not have entered the project in the OARC home brew contest.

Richard Hagemeyer, VE3UNW

Repeater Audio Archive Project by Richard Hagemeyer, VE3UNW (<http://raap.admin2.ca>)

listener by Folkert van Heusden (<http://www.vanheusden.com/listener/>)

SoX, originally by Lance Norskog and now by Chris Bagwell (<http://sox.sourceforge.net/>)

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Black Holes

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rsync by Andrew Tridgell (<http://rsync.samba.org/>)

PHP: Hypertext Preprocessor originally created by Rasmus Lerdorf and now many people (<http://www.php.net/>)

PostgreSQL originally by Michael Stonebraker and now by many people (<http://www.postgresql.org/>)

Original month calendar by Dr Quincy (<http://www.drquincy.com/resources/tutorials/webserver-side/phpcalendar/>)

Seagate 500GB Barracuda 7200.10 SATAII - HD-ST3500630AS, May 13, 2007 (<http://www.pccyber.com>)

Montana's Cookhouse, 1711 Merivale Road. All are invited every Monday night from about 20:30-22:00

Ottawa Amateur Radio Club (www.oarc.net)

Editorial

(Continued from page 1)

Thanks are also due to Dave Green and Diane Bruce for working to protect amateur radio's interests on the by-law committee at the City of Ottawa. Thanks to Greg Danylchenko for his 10 years of managing the Hamfest and bringing it from the stables to the Big Top. And thanks to Ed Sich for taking it over. Thanks to Harold Hamilton for managing Field Day. Thanks to Brian Campbell for providing coffee and treats at every meeting. A vote of thanks to all the OARC executive members, and especially outgoing President, Diane Bruce. Thanks to all our meeting presenters. And thanks to anyone else whom I forget to mention.

Finally, I would like to thank all the contributors to the Groundwave over the past year and especially, Mike, VE3FFK, for his monthly column.

Have a great summer.

Ian Jeffrey, VE3IGJ, Editor

From an article in the Jan.13, 2007 Montreal Gazette by Marc Kaufman

Albert Einstein posited the existence of objects in the universe so dense that even light could not escape them. Researchers now believe that millions of black holes exist; some just a few kilometres across some as wide as our solar system. Astronomers now detect them by the extremely bright light and other radiation that emanates from around a hole as it swallows a nearby star or galactic gases. Detectable bursts of gamma rays also shoot out as a star explodes and collapses into a black hole. When a massive star runs out of fuel it collapses under its own gravity into a black hole. At the core is an extremely small point called a singularity, with gravity so strong that not even light can escape. Black holes accumulate matter which spirals in on an accretion disc. As the material approaches the black hole, friction heats it to several million degrees which stimulates the radiation of x-rays. Interaction between the magnetic field and the accretion disc creates magnetic winds that blow some of the disc's material back into space at 480 kilometers per second. Black holes can spin as fast as 950 times per second creating powerful magnetic fields. Such a field from a super-massive black hole – with a mass of perhaps a billion suns – can send a jet of particles at almost the speed of light far beyond the center of a galaxy. The event horizon of a black hole is the point beyond which gravity is infinitely strong and all matter & light plunge at the speed of light toward the singularity. The diameter of the event horizon, in kilometers, is equal to 6 times the number of solar masses that have accumulated.

MEMBERSHIP APPLICATION / RENEWAL

Ottawa Amateur Radio Club, Inc.

Box 8873 Ottawa, Ontario K1G 3J2

- Renewal New New Ham (FREE if licensed in current membership year)
 Single (\$25, \$20 after Feb. 1) Family (\$30) Junior (\$15)
 Emailed PDF Copy Mailed Copy *Add \$5.00 for mailed copy of Groundwave.*

(Please note: membership year is September 1 to August 31.)

Family Name: _____ First Name/Initials: _____

Address: _____

City: _____ Prov: _____ Postal Code: _____

Home Phone: _____ Work Phone: _____ Ext _____

E-mail address: _____ @ _____ (For Groundwave mailing)

Callsign(s): | _____ | | _____ | | _____ | Fax: _____

Qualifications: Basic Advanced Grandfathered

Year Licenced: _____

Other Family Members

Name: _____ Callsign(s): | _____ | | _____ | | _____ |

Qualifications: Basic Advanced Grandfathered

Year Licenced: _____

Name: _____ Callsign(s): | _____ | | _____ | | _____ |

Qualifications: Basic Advanced Grandfathered

Year Licenced: _____

Name: _____ Callsign(s): | _____ | | _____ | | _____ |

Qualifications: Basic Advanced Grandfathered

Year Licenced: _____

Interests: _____

Comments/Suggestions: _____

The Ottawa Amateur Radio Club

is pleased to announce its 11th Annual



Hamfest

Saturday, September 1, 2007 (Labour Day weekend)

Tailgaters Open and Building Vendor setup: 8 am

Building Opens: 10 am until 1 pm

Radio Amateurs of Canada Annual General Meeting, Forum & Technology Update: 1 pm - 4 pm

Carp Agricultural Fairgrounds

3832 Carp Rd (at Falldown Lane)

Ottawa (Carp), Ontario

From Ottawa take Highway 417 west to Carp Road exit, 10 km north to the fairgrounds

We are in the Arena, so follow the signs on the site

\$6 general admission

\$12/table (plus admission)

\$5/tailgate (plus admission)

We will once again be offering an excellent door prize. Details will follow.

The OARC is proud to sponsor the RAC Annual General Meeting, Forum and Technology Update. This highly informative event follows immediately after the close of the Hamfest at 1 pm. We are very fortunate to have Dave Goodwin (VE3AAQ), RAC's Ontario North/East Director, as Moderator.

For further information or reservations: Ed Sich, VE3WGO 613-763-3628

fleamarket@oarc.net , www.oarc.net/fleamarket