



Offawa Amateur Radio Club

Groundwave

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Check out our Web Page: www.oarc.net

January 2007

We were all saddened to learn of the passing of Debbie Norman, RAC's General manager. She will be greatly missed by those who knew her. See the RAC notice inside.

This year's Joe Norton Award winner is Robert Cherry, VE2AGE. Robert was presented with his award at the December meeting.

The speaker for the January meeting will be Elias Zaydan, VE3EKZ. His talk is entitled "How Secure is your Cell Phone?"

Don't forget the RAC Winter Contest December 30. See the details on the RAC web site.

Merry Christmas and Happy New Year to all OARC members, their families, and friends.

Don't forget Sydney's (VE3GVI) annual Christmas Net at 0930 EST on Christmas Day.

Ian Jeffrey, VE3IGJ



**JANUARY MEETING 7:30 pm, January 10th
in the Honeywell Room at Ottawa City Hall**

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Ottawa Amateur Radio Club

Groundwave

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 only 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.



Dates to Remember

December Minutes

The meeting was called to order at 19:31 by the vice president Dave Green in the absence of the President. Dave called for any errors or changes to the minutes of the last meeting and getting none he asked for a motion to accept them as printed. Moved by Mike Kelly VE3FFK and seconded by George VE3BNO, the motion passed overwhelmingly.

Dave's inquiry for any visitors produced Robert Cherry, VE2AGE, a young unlicensed man named Matthew and Dick Atkinson, VE3JBO/VE3RDA a former member. Dick brought along a GLB 300 synthesizer build from a kit for possible donation to the club archives.

Dave made a few announcements to the members. With great sadness to all who knew her Debbie Norman VA3RGM has passed away. Debbie was the general manager of the RAC office for many years. Replacing her will be impossible, finding a new GM for RAC will be difficult. Our condolences to her family. Dave passed out congratulations to Dave Goodwin, VE3AAQ, sitting in the front row, on his recent election as RAC NE Ontario Director. The RAC winter contest will take place Dec 30 this year. Maurice Andre, VE3VIG, is setting up a course on satellite operations for beginners at the Science Museum station. Contact VE3VIG for further info or to sign up. IC has authorized special prefixes CG3 for VE3 and CF3 for VA3 in celebration of the 100th year of voice communication, during January and February. See RAC.CA and IC on the web for more. Dave noted that the FCC has made changes to the voice/cw allocations in the 80M band for US hams. This will have impact here as well, RAC and ARRL are both aware and it's possible changes may come here to harmonize.

Mike, VE3FFK, made a couple of announcements. The Calabogie race track is looking for help running their race days. Marshals, race control operators etc. are needed. Mike also discussed the battery charger project briefly. He was taking orders and money at his table for all those who want a kit.

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2006	
Sep. 2	OARC Hamfest and RAC Forum
Sep. 30	Membership Renewal Deadline
Nov. 1	Joe Norton Award Subm. Due
Dec. 30	RAC Winter Contest
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

It is with deep regret and much sadness that I have to inform Radio Amateurs of Canada members, Canadian amateurs, and our friends everywhere that General Manager Deborah "Debbie" Norman VA3RGM became a Silent Key late in the evening of Monday November 27 2006.



So many of us have known Debbie through many years of working with her at CARF, through the merger with CRRL and many years with Radio Amateurs of Canada. In so many ways she was the voice of RAC, the cheerful personality on the other end of the phone line.

On behalf of RAC's members and your many friends in amateur radio, Debbie, our sincerest thanks. May you rest in peace.

73/88

Earle Smith VE6NM
President Radio Amateurs of Canada
Chair Board of Directors



RAC Bulletins



Since Industry Canada removed the mandatory requirement for the Morse Qualification for access to the HF bands below 30 MHz on July 22, 2005, there has been confusion as to whether amateurs with a "Basic Plus" qualification (without Morse Code) are permitted to use the HF bands in other countries.



A spokesperson for the FCC's Amateur Division has clarified the situation regarding the Reciprocal Operating Agreement between Canada and the United States:

- A Canadian Basic Plus licensed operator located within the US, US-controlled territories, or US territorial waters has the same HF privileges as in Canada, insofar as those privileges do not exceed those granted to US Extra Class amateurs.

A Canadian licensed operator operating within the US or US waters must comply with US regulations for the Amateur Radio Service. Their operating privileges can be no more than those of a US Extra Class Amateur. This means that Canadian amateurs in the US cannot, for example, use SSB below 7150 KHz on the 40 meter band, as they are able to do in Canada or in international waters. Industry Canada has confirmed that this statement is consistent with Industry Canada's understanding of the reciprocal operating treaty between Canada and the US.

The situation in other countries varies from country to country. Many countries have still retained the Morse requirement for HF, and some countries continue to require a Morse qualification for HF operation by amateurs visiting from other countries. Basic Plus operators planning to visit countries other than the US and wishing to operate on HF while travelling should contact the regulatory authorities in those countries before leaving Canada.

At the request of Radio Amateurs of Canada, Industry Canada has authorized all Canadian radio amateurs to use special event prefixes for the months of December 2006 and January 2007, to mark the 100th anniversary of the first AM voice broadcast by Reginald Fessenden on Decemebr 24, 1906.

Reginald Fessenden, who was born in East Bolton, Quebec, on October 6, 1866, and lived until July 22, 1932, was the holder of more than 500 patents on a wide variety of subjects, and the inventor of radio as we know it today. He is particularly known for: the first voice transmission by radio in 1900, the first transatlantic two-way radio communications in January 1906, and the first radio broadcasts of entertainment and music in December 1906. On Christmas Eve, 1906, from a transmitting station in Brant Rock, Massachusetts, he sent a short program which included the song O Holy Night played on the violin and a reading from the Bible. A second short program was broadcast on December 31, 1906.

Canadian radio amateurs are authorized to use the following special event prefixes during the period 1 December 2006 to 31 January 2007 inclusive:

- CF for VA stations
- CG for VE stations
- CH for VO stations
- CI0 for VY0 stations
- CI1 for VY1 stations
- CI2 for VY2 stations.

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Janice asked for anyone who wanted a free name tag to see the membership chair and sign the sheet to get one. Janice also had previously volunteered to take the minutes in the absence of a secretary this evening.

Gord reported on the membership counts this year

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mk's Words

What a meeting. The OARC project has been launched, with 8 participants. Two more have promised to sign up before the order goes in on December 18. We'll see. If all goes well, the kits should be back by the January meeting, then things will really heat up. We aren't up to the standard of the synthesizer project that VE3JBO brought in as a reminder from club projects of the 1970's, but at least it's a (re)start.

Our second (annual, I hope) TRIVIA NIGHT was a hit once again. I'm going to try to get Richard, VE3UNW to publish the answers (and questions) to the Jeopardy style game over the next few months, so those few of you who missed the evening can share in the fun. Congratulations to VE2AGE, Robert on receiving the Joe Norton award. If your trajectory as a ham continues as it has so far, you are in for fun ride. Meanwhile, I hope the cheque does good things for your toy budget. Congratulations and thanks also to Matthew, (no call-sign YET) for joining the executive team. Your voice around the table will be most welcome. The rest of us are getting into a rut, and could really use some new ideas. There is still one empty chair, so don't think the rest of you are off the hook yet.

Whether it was the name badge promotion, or the hard work getting the word out to lapsed members it was sure nice to see some faces at the meeting that I haven't seen for a while. Welcome back.

Outside the club, the Rally of the Tall Pines has come and gone again. Half of the teams who entered made it to the finish line, and nobody got hurt. That is what I call a successful rally. Unlike last year, I didn't hear of any volunteers damaging their vehicles, or even getting stuck. That part went much better probably because of the benign weather for that, I guess. Even better, some of the people running the rally have clued in to the fact that they need better training for the rally types who use their amateur radio licenses for this one time a year. Things are looking up.

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Brainteaser

Last month's puzzle:

In a common carnival game a player tosses a penny from a distance of about five feet onto the surface of a table ruled in one-inch squares. If the penny (3/4-inch diameter) falls entirely inside a square, the player receives five cents but does not get his penny back; otherwise he loses his penny. If the penny lands on the table, what is his chance to win?

Answer:

If the penny lands on the table then its center is in only one square. Place four pennies in the corners of a square so that the edges of the pennies just touch the edges of the square. Now draw the small square that joins the four centers of the pennies. Now when a penny is thrown onto the table if its center falls inside the small square, then the penny is entirely inside the large square and the player wins. This small square is 1/4 inch by 1/4 inch. Therefore, the probability of a win is the area of the small square over the large square, or 1/16.

This month's puzzle:

Coupons in cereal boxes are numbered 1 to 5, and a set of one of each is required for a prize. With one coupon per box, how many boxes on the average are required to make a complete set?

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being at 85 up from 64 at this time last year. Seven members signed up tonight.

Dave Green led a group discussion on the need for a complete executive. We are currently short a director and a secretary. As a result of the discussion we were able to fill the director position. Thanks to Matthew for volunteering. This leaves only the secretary position open. The workload is minimal please consider giving it a try.

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CHU

NRC Short Wave Station Broadcasts (CHU)

NOTICE:

About the New Messages on CHU – October, 2006

The added messages on CHU are:

"On April 1, 2007, CHU needs to stop operating, change frequencies, or re-licence. Contact radio.chu@nrc.gc.ca or mail CHU Canada K1A 0R6,"

This outreach is to collect information from users of CHU to help shape recommendations concerning what should be done concerning changes to CHU that will have to be in place by April 2007.

In April 2007 the licence on 7.335 MHz will have to be modified to reflect changes on the status of the band allocation by the International Telecommunications Union. This frequency has been changed from "fixed service" to "broadcast". (The ITU decision does not affect the frequencies 3.33 MHz and 14.67 MHz.) Some alternatives are:

Re-licencing just might be possible, calling the 7.335 MHz a "broadcast".

It is also possible to stop using that frequency (the most useful of the three we use). Stopping one signal is the easiest solution but could create problems for some clients who are counting on this particular signal.

Change the frequency from 7.335 MHz to a nearby fixed-service frequency. It would need some investment from our part in new hardware and in manpower. It could also create problems for clients, and likely not all radios will be able to tune to the new frequency.

Closure of the entire CHU operation, as discussed below.

To be seriously considered, any of the above alterna-

tives will need to have a zero-based budgeting justification prepared, comparing it against the least expensive alternative of closing CHU entirely. CHU is entering a phase where major investment in new transmitters will be required if it is to be kept operating. In the absence of input from the CHU user community, concerning the importance of CHU's contribution in the modern world, this last option is an inescapable recommendation.

The CHU code is also used as a radio clock, which can be used as a reference clock for an NTP time server. Software drivers have been written that can obtain the date and time from the code and that tune a digitally tuned radio to one of our 3 frequencies, to get the best signal. Users of this service generally don't listen to the audio broadcast. So we cannot gauge the usage by sending this announcement.

Please, if you know of anyone using CHU but not aware of the possible changes to its frequency usage, let them know and ask them to contact us about any essential uses. Also if you have an important use for CHU signals, please tell us how you use our signals.

We are quite prepared to keep CHU in operation, and we will try and make the best case possible to present to all decision makers.

CHU Time Service

Time accuracy superior to telephone time accuracy is available throughout Canada and in many other parts of the world by means of NRC's radio time signals broadcast continuously from short wave radio station CHU. If corrections are made for the propagation delay from CHU to the user, and for delays in the user's receiver, an accuracy of better than 1 ms can be obtained. Signal availability at a user's location depends on ionospheric conditions. CHU also broadcasts a time code which can be decoded with common computers and modems.

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Three frequencies are used: 3330, 7335, and 14 670 kHz. The transmission mode, upper single sideband with carrier re-inserted, provides time signal service without requiring a special SSB radio, and also provides three standard frequencies. The frequencies are derived from one of a trio of closely synchronized atomic clocks located at the transmitter site. Three clocks are employed to permit majority logic checking. CHU time signals are also derived from these clocks. The clocks at the CHU transmitter site, about 20 km from NRC's time laboratory, are compared daily with the NRC primary cesium clocks.

Normally CHU's emission times are accurate to 10-4 s, with carrier frequency accuracy of 5x10⁻¹², compared to NRC's primary clocks, which are usually within 10 microseconds and 1x10⁻¹³ compared to UTC. UTC is the international official time reference. It is constructed by the Bureau International des Poids et Mesures (BIPM), based on the average of laboratory and commercial atomic clocks located in laboratories around the world. It is steered in frequency using the primary cesium standards (such as those at NRC) located at some of the major time laboratories. UTC loosely follows the irregularities of the astronomical time scale UT1, which is needed in astronomical observations and in celestial navigation. Since 1972, leap seconds have been used to keep UTC within 0.9 s of UT1. The difference [UT1- UTC] is called DUT1, and this fraction of a second [-0.8 s to +0.8 s] is broadcast by means of an internationally accepted code. To decode the size of DUT1, in tenths of a second, a user counts the number of emphasized seconds markers in one minute. For CHU, the emphasized seconds pulses are split, so that a double tone is heard. When the emphasis is on seconds 1 through 8, DUT1 is positive; and when DUT1 is negative, seconds 9 through 16 are used.

The first minute of each hour commences with a full 1 s pulse of 1000 Hz tone, followed by 9 s of silence, and then the normal pattern of 0.3 s pulses of 1000 Hz at one-second intervals. The normal pattern for each of the next 59 minutes starts with a 0.5 s 1000 Hz pulse, followed by the DUT1 code employing split 0.3 s pulses where required, and normal 0.3 s pulses up to and in-

cluding that at 28 seconds. The pulse at 29 seconds is omitted.

Following the normal pulse at 30 seconds, for a 9 s period, 1000 Hz pulses of 0.01 s occur, each followed by the CHU FSK digital time code described in [CHU Broadcast Codes](#). The pulses between 40 and 50 seconds are of normal length. In the final 10 s period of each minute a bilingual station identification and time announcement is made, with the 1000 Hz seconds pulses shortened to "ticks". Each minute's announced time refers to the beginning of the pulse which follows. Since April 1, 1990, the announced time is always UTC.

The CHU station is located 15 km southwest of Ottawa at 45° 17' 47" N, 75° 45' 22" W. Main transmitter powers are 3 kW at 3330 and 14 670 kHz, and 10 kW at 7335 kHz. Individual vertical antennas are used for each frequency. The electronics systems feeding the transmitters are duplicated for reliability, and have both battery and generator protection. The generator can also supply the transmitters. The announcements are made by a talking clock using digitally recorded voices.

Historical Information

Radio station CHU is operated by the Institute for National Measurement Standards at the National Research Council of Canada.

The call letters CHU were first used for Canadian time transmission in 1938, on the modern frequencies, 3330 KHz, 7335 KHz and 14670 KHz. Before that the call letters of essentially the same transmissions were VE9OB. The carrier frequency has been the specified standard since 1934; before that the quartz oscillators had been tuned to standard wavelengths. Continuous transmissions at a wavelength of 20.4 m had started in 1933, joining the 40.8 m and 90 m transmissions, which began in 1929 (daytime only). Daily transmission on a wavelength of 52.5 m had begun in 1928 under the call letters 9CC (later VE9CC), but ceased with the startup of 40.8 m operation. 9CC had started experimental time transmission in 1923 on 275 m, and license 3AF had operated in 1922. Thus there

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is quite a range of possible dates to assign to the establishment of CHU; we lean towards 1929 as being the start of daily time transmissions at essentially the modern frequencies. Of course there has been quite a change in equipment and accuracy over the years, but the largest improvement was with the change to cesium atomic clocks in 1967. In 1970 the responsibility of operating CHU was transferred from the astronomers at the Dominion Observatory, to the physicists at the National Research Council.

Since 1970, the National Research Council has been charged with maintaining official time for Canada. The short wave radio station CHU is one, but only one of the ways that official time is disseminated across Canada.

Following internationally accepted recommendations, Canada and other countries have official time scales in agreement within $10\mu\text{s}$. Since CHU's transmissions are well within $100\mu\text{s}$ of official Canadian time, for all distant users of CHU, the dominant source of time error comes from the radio wave path reflecting off the ionosphere as the radio signal travels from the transmitter (in Ottawa, Ontario, Canada) to the user. The time delay is $3.3\mu\text{s}$ per km of path, and generally varies by less than 1ms, due to uncertainties in path including the uncertainty in the number of skips made by the radio wave (reflections down from the ionosphere and back up from the surface of the Earth). For a fixed receiver when the number of skips does not change, the variation in the path delay will usually be less than $100\mu\text{s}$. A small additional delay comes from the radio receiver, and may be significant.

Before April 1, 1990, CHU's time announcements were given as Eastern Standard Time. Since that time CHU's time announcements have been given as Coordinated Universal Time (UTC). The change from EST to UTC was done to remain in the spirit of the recommendations of the International Consultative Committee on Radio: 'that the standard time broadcasts on standard frequencies be given in UTC'. In a narrow sense, since CHU does not broadcast on the frequencies allocated for frequency standards, one might argue that these rec-

ommendations do not necessarily apply to CHU. However, since CHU is received across Canada's six time zones and around the world, we made the change when it became possible technically to change from EST to UTC without difficulty.

The warble tone at seconds 31 to 39 allow any computer with a Bell 103 compatible 300 bps modem to receive and decode an accurate source of time. The details on the CHU broadcast code can be found here.

Reception reports from around the world, are gladly accepted from listeners. We will respond with a QSL card. Please send reception reports to:

Radio Station CHU

National Research Council of Canada

1200 Montreal Road, Bldg M-36

Ottawa, Ontario, Canada K1A 0R6

Or by e-mail to radio.chu@nrc-cnrc.gc.ca

Christmas Net

There will be a special Christmas Day Net on repeater VE3TWO and all radio amateurs are encouraged to join in. This net gives you an opportunity to tell everyone about the new amateur gear that Santa is going to bring you; on the other hand, if you haven't been a good amateur this year, and Santa does not bring you a new rig, you are still welcome to join the net, if you promise to be better behaved next year. You can also convey Christmas greetings to all your friends. This is an opportunity as well to introduce any visitors you may have over Christmas in your home to amateur radio, in an informal way. It is also a good opportunity to introduce your own children and visiting children in your home to the fun side of amateur radio. Start them young on your hobby!

The net starts at 0930 hours EST on the OVMRC club 2 metre repeater VE3TWO, 147.30 receive, 147.90 transmit. It will be just about as informal as a net can get. See you then. This year the net will be carried simultaneously on 70cm and 6m. I will be net controller, as I have been for more years than I can remember, but it is probably over 25 years. I would also like to thank the OVMRC for allowing again use of the club repeaters for this net.

73 and Ho Ho Ho! Sydney, VE3GVI, 613-820-0093



Volunteers Requested

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The track at Calabogie is looking for amateurs to help out with their trackside radio operations on commercial frequencies. I'll try to pry some space out of the editor to expand on that elsewhere in the Groundwave. [Look to the right, Ed.]

There were two sessions at Collegetown, the Emergency Preparedness College since the last meeting. One of them was in French. Thanks to those who came out to help. Special thanks to the last minute hams who filled the gap. We can always use more volunteers. The list of people who can make a hole in their weekday schedule is small enough. Please share the load, so we don't burn anybody out. It really is fun, and a great learning experience.

Under the heading of fun for fun's sake was the annual ARRL 160m CW contest. Although the propagation didn't seem as good as last year, the fun certainly was. Nothing broke, although at one point in the tune up we found that lengthening the antenna raised its resonant frequency. If we could figure out how we did that, we ought to get a perpetual motion machine working on time for next year. Anyway we still worked a ton of stations, including hams in Hawaii, Europe and South America. Not bad for a band that many write off. Unfortunately, we missed working both VE3BNO and the ZBBs. They have come to be fixtures on these winter funfests. Maybe next time.

Now it's on to 2007. Remember when a date like that was the far future, with atomic cars and turkey dinner pills? See you in the future.

-mk VE3FFK

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Dave then called on VE2AGE, Robert Cherry, to come to the front of the room in order to be presented with the 2006 Joe Norton Award. A plaque and most importantly a \$500 cheque were presented to Robert.

At this point the business meeting was completed and adjourned and a round of the Christmas trivia contest was played. Thanks to Richard, VE3UNW, for this fine Jeopardy style contest. A good time and many candies were enjoyed

The track at Calabogie is looking for radio operators, including "race control" and marshalls. In addition to competition, the track also hosts driver education days for car clubs of various marques (Ferrari, Porsche, etc.), so there is the chance to watch some interesting metal go around.

The track uses commercial comms gear, therefore you can receive remuneration, unlike the usual amateur radio volunteer situation. They need operators, not radios.

Doing Race Control, or marshalling would require taking the marshals' course (~ 3 hours next spring), to understand how the track is run and what the various marshalling positions require. After that, it would be on-the-job training with our current Race Control. Jean (their marshalling coordinator) says " I figured you hams are experts at communications, and if some of you are interested in motorsports and want to be involved in the track, that would be great! "

New marshals are required to work the first two events, and starting on the third they will get paid. Marshals get paid \$75.00 per event.

Contact info:

Jean MacGillivray
Marshalling Coordinator
Calabogie MotorSports Park

Ph: 613.727.6252

Fax: 613.230.3436

www.CalabogieMotorSports.com

marshalling -at- calabogiemotorsports -dot- com
rosetta -at- magma -dot- ca

-de mk, VE3FFK

by all. Gift certificates to Tim Horton's were passed out to the many winners.

Thanks to Dave, VE3KMV, for selling the 50-50 tickets, Peter, VE3LBW left with an extra \$18.50 in his pocket. The meeting dissolved for coffee and cookies at about 8:45.

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: _____
