



Ottawa Amateur Radio Club

Groundwave

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From the Editor:

March 2013

The speaker for the March meeting will be Dr. Nur Serinken of CRC. The title of his talk is "HF Propagation and propagation prediction with VOACAP". An introduction to HF propagation will be presented. Propagation prediction VOACAP input and output parameters will be explained with a demonstration of live VOACAP execution. The prediction program utilizes parameters predicted from antenna pattern and noise prediction to determine system performance values. The interaction of sub programs will be covered.

Don't forget that the April meeting is Homebrew Night so get your projects ready to show.

Hope to see you at the meeting.

Ian Jeffrey, VE3IGJ, Editor



Check out our Web Page: www.oarc.net

**Next Meeting 7:30 pm, Wednesday, March 13th
in the Colonel By 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 "ve3igj@rac.ca". Deadline for submissions occurs three days after the regular monthly meeting of the OARC.

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 which is on the second floor 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.

Please support your local radio organisations. They support you!

The CAPITAL CITY FM Net meets every Monday (except some holidays) at 20:00 hours on the club repeater **VE2CRA 146.940(-)** 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, got to <http://www.ncswapnet.ca>. You may reach Ed at 613-738 8924 or e-mail him at va3es@rac.ca.

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 Monday evening at 19:30 hours on repeater **VE3MPC 147.150(+)**. 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.

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.

The Ottawa Amateur Radio Club bulletin "Groundwave" is published and distributed to club members. 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 CTCSS required
 (UHF) 443.300/448.300

VE3TVA Amateur Fast Scan Television Repeater
 Currently off the air and looking for a new home.

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.



February Minutes

The minutes were not available at press time.



Radio OPs coordinator, Harold Hamilton VE3UNK, presents 5 year Canadian Ski Marathon volunteer pins to Greg VE3YTZ, Margaret VA3VXN and Tyler VA3DGN.



Radio OPs coordinator, Harold Hamilton VE3UNK, displays the award extended to Radio Amateurs in recognition of the contribution they have made to the success of the Canadian Ski Marathon, 1974-2013. The award will eventually hang at RAC HQ.

Dates to Remember

2013

- Feb. 9, 10 Canada Ski Marathon
- Apr. 10 Homebrew Night
- Jun. 12 OARC AGM and Elections
- Jun. 22, 23 Field Day
- Jul. 1 RAC Canada Day Contest
- Sep. 7 Hamfest
- Sep. 30 Membership Renewal Deadline
- Nov. 1 Joe Norton Award Subm. Due
- Dec. 28 RAC Winter Contest

Brainteasers

1. Which is worth more, a pound of \$10 gold pieces or half a pound of \$20 gold pieces?
2. An electrician is faced with this annoying dilemma. In the basement of a three-story house he finds bunched together in a hole in the wall the exposed ends of 11 wires, all alike. In a hole in the wall on the top floor he finds the other ends of the same 11 wires, but he has no way of knowing which end above belongs to which end below. His problem: to match the ends. To accomplish his task he can do two things: (1) short-circuit the wires at either spot by twisting ends together in any manner he wishes; (2) test for a closed circuit by means of a "continuity tester consisting of a battery and a bell. The bell rings when the instrument is applied to two ends of a continuous, unbroken circuit.

Not wishing to exhaust himself by needless stair-climbing, and having a passionate interest in operations research, the electrician sat down on the top floor with pencil and paper and soon devised the most efficient possible method of labeling the wires.

What was his method?

Answers next month



mk's Word

CSM 2013 -The view from the Admin2 bus.

It was a relatively easy weekend for me this time, although the net control team had some early difficulties. It was necessary for them to relocate the net control station on Friday due to RF noise in the Chateau Montebello, a room which had been used for the NCS for decades. Kudos to the NCS team of VE3CZO KMV and XGP with help from VA3DRV and I don't know who else, for getting the net control station up and running under difficult circumstances.

Communications on Friday was on 146.940-145.410, on Saturday we were on 147.000. On Sunday we started on 146.940-145.410 but at around 10:30 the two repeaters were split and the net stayed on 145.410. There were the usual difficulties with communications around some of the checkpoints, but everybody got the messages through.

The marathon itself was one of the smoother ones on the books, although on Friday most of the people got a late start due to road conditions on the way there. The trails crew had a particularly difficult time, since the snow didn't stop coming down until just before the first of the participants started. The track setting machine had to move fast to stay ahead of the skiers. Those who camped out after the first day's ski (a few hundred of them) seemed to weather the night of -24 degree clear skies fairly well. Of the lot only about four decided not to continue on Sunday. I didn't hear of any major medical problems, and don't think anyone was transported to hospital this year.

Transitioning NCS duties from Montebello to Buckingham went unusually smoothly at around 12:30 Sunday. The team collecting barcode data from the checkpoints was kept hopping with various issues, but in the end it all worked out. Every year the tracking of skiers gets just a little bit better. Every year we look like magicians when we

can get skiers and their lost gear, or partners, back together again.

Although there was a lot of frantic paddling going on below the surface, very little of it was visible to the skiers. I was at the last checkpoint when the sweep arrived with the last of the skiers, and noted that the sun was still over the horizon. I don't remember that happening before.

After about 40 years, we must all be getting good at this, since amateurs, in the name of the OARC and VA3UNK got the CSM Volunteer of the Year award again. This is the third time since amateurs began working with the CSM that hams have received this award. No other group or individual has received this recognition three times. It's nice to know we are appreciated. Congratulations also to VA3DGN, VA3VXN and VE3Ytz for receiving their 5 year pins. Tyler, Margaret and Greg are now definitely beyond the rookie category. Well done. For that matter, all of you who came out to play at "Winter Field Day" can give yourselves a pat on the back.

The CNCycle and Rideau Lakes tour will be here sooner than you think.

mk VE3FFK

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If we are a G and have contest experience we exercise patience and listen for the elusive Test calls from remote zones, if we are new to the game then its ten chances to one that we shall make the mistake of crashing out a Test call which will almost certainly be abortive. Experience has taught those of us who have operated in previous BERU contests that it pays to answer DX rather than initiate Test calls. (T&R Bulletin, 1937).

The BERU contest this year is from 10:00UTC March 9 to 10:00UTC March 10. Check out the details at <http://www.beru.org.uk/>



What's All This Perfection Stuff, Anyhow?

Bob Pease

(First published in the April 11, 1991 issue of *Electronic Design*)

Once upon a time, a lady went shopping for shoes. She went into a shoe store and said to the salesman, "My good man, I would like to buy some alligator shoes." The salesman showed her some alligator shoes. But this one had a flaw, and that one had a blemish, and that one had a scratch. He went back and got more shoes. But when the lady inspected them, she found an imperfection that was unacceptable to her every time. Finally, he brought out every pair of shoes he had, and she was not prepared to buy shoes with such defects. In great exasperation, the salesman told her, "Look, lady, you're not perfect. I'm not perfect. How do you expect an alligator to be perfect?"

One of my latest ventures involves the writing of a book. On October 30, 1990, I handed in a complete, polished manuscript. I don't know how many words, or how many pages, but it was about 700,000 bytes and the Fed Express guy had to struggle to get it on its way. This was a refinement of some stories on the troubleshooting of analog circuits I wrote a couple years ago. I took the old stories and added a lot of new info, tweaked and refined a lot of the text, and corrected some typo errors, finally rounding it into pretty good shape. With a little luck, the book will come out on schedule this month.

On November 14, I sent to the publisher a package of new corrections and changes. Only one envelope, but there were 28 items there. When I talked with the publisher, I could tell she was smiling, seeing that I was so willing to put so much effort into getting things right. On November 30, I assembled an envelope with more corrections, changes, refinements, and upgrades. I mean, some of the people had moved in the last month, so I certainly had to put in an address correction. In several cases, the distributors who sold things

didn't sell them anymore. In other instances, I remembered a new technique that I had forgotten previously. So, when I send in this package, I'm really making progress—because there are only 27 items.

Next week I expect to remember a couple more items. I'm not sure exactly when the smile will completely disappear from my publisher's face, but it's only a matter of time. She will say, "It's time to shoot the engineer, and put this to bed and print what we've got." And I'm sure I will have to agree with her pretty quickly. But meanwhile, I know I have to correct the spelling of one guy's name. We can't leave that wrong. And an old friend is mailing me some more info on some diodes. And there are curves that don't look quite right... and there are some photographs that still need to be developed, not to mention the ones that haven't yet been taken....

"Time to shoot the engineer." That's a phrase that has been around for a long time. Almost as soon as I got out of school and into industry, I began to hear people explaining that the need for perfection was all very fine, but it must not go on much further. When is the circuit going to be good enough? Perfection isn't necessarily justifiable. What is good enough? And whose opinion is to be relied on? Sometimes the engineer is correct that there are some improvements that have to be made. Other times, it's not so clear.

For example, we were recently trying to release a new product, but the distribution of one parameter was not quite centered. The yields might occasionally fall off more than we liked. So we proposed an optional metal mask that would bring the distribution back close to center. But this might cause some dynamic problems. And even if it didn't cause serious problems, it might get some of our customers cross if they had to re-qualify our product, because we had made a change in a mask, even though it would be a very tiny change.

What's the right thing to do? Accept the yield loss? Change the data sheet? Delay the re-

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lease of the product and risk the loss of market share? If we wanted to compromise, where would we do it? Hey, I don't know how you run your business, but in our business, there aren't any easy questions. If you're making alligator shoes, and your QC department says you can ship only shoes that have no visible flaws under a magnification of 5X, you're not going to be selling a lot of shoes. But, most of the time, our shoes are on our feet, at least 3 or 4 feet away from our eyes or anybody else's eyes. From that vantage point, "imperfection" is quite different.

Now, I'm not proposing that we refuse to ship amplifiers because they're not "perfect." I mean, if a perfect amplifier is one that has less than 0.5 mV of offset voltage, we have a lot of perfect amplifiers. Just 10 years ago, customers were pretty happy to buy that kind of "perfect amplifier." But these days, even 15 μV isn't "perfect." And if you build lots of amplifiers with less than 10 μV , and they all test out good, and then you allow them to warm up, and you temperature cycle them through an oven, are they still "perfect"—better than 15 μV ? If you want to buy a "perfect" amplifier, do you require big safety factors against every possible condition? You may wind up going barefoot: The price for a "perfect" pair of shoes might be more than you would be willing to pay. Sometimes we have considered that amplifiers at this level of precision might have a looser AQL than normal—perhaps 0.5% instead of the typical 0.01%. But your QC people don't want to concede to that.

If we test an amplifier for noise, and we do it 30 times, the data might show low noise on 27 of the passes. But on 2 or 3, there might be a small deviation—an increase (or a decrease) in the test result—whether or not the amplifier actually made more noise. Heck, you can't design a noise test to be perfectly repeatable—that's inherent in the nature of noise. Now, if a unit passes a test at its "class" or final test, it must never be allowed to fail its guaranteed specs if you re-test it. That means you must have wide guardbands, as wide as the deviations of the system's noise. If an amplifier that reads 1 μV pk-pk most of the time can read

0.8 μV other times, that would tell you that you must have a guardband of at least 0.4 μV , and maybe 2 or 3 times that. So you could sell to a guaranteed spec of 2.2 μV —even though most of the parts are 1 μV pk-pk. Is that the spec you want to buy?

Once, a long time ago, a bright young engineer was working on semiconductors in England. The transistors were passing a 27-V breakdown test very reliably. But this semiconductor company was a subsidiary of a large plumbing-supplies company. And if you're making boilers or gauges or pipes, you've got to have a 3:1 ratio between the working pressure and the bursting pressure. So, this semiconductor company wrote their data sheets for a 9-V transistor, while their competitors were selling to a 24-V spec. Needless to say, the young engineer knew there was no future in a business where perfection and safety factors make the playing field so badly tilted. And that was why Bill Frusztajer left England and came to the United States, where he became the head of Tele-dyne Crystalonics.

[Bob Pease was an analog engineering legend, and wrote columns exclusively for *Electronic Design* magazine until his death in 2011. He also contributed to the magazine with Bob's Mailbox, where he answered questions from young engineers. Bob obtained a BSEE from MIT in 1961 and was a staff scientist at National Semiconductor Corp., Santa Clara, CA, for many years. Ed]



Director's Report

February, 2013

On February 15th, 16th and 17th the Directors, President Bawden and other Executive will meet in Ottawa for our annual meeting to discuss the future of Radio Amateurs of Canada. Now that RAC is out of the woods financially we want to ensure the future of the organisation both fiscally and on an operational basis.

I believe we have made all the cuts possible to reduce expenses and there are no more savings to be had so our task is to increase revenue for RAC. The first and most obvious way is to increase membership. I will be frank with you; it is a difficult sell to convince some Canadian Amateurs to join RAC. They have a million reasons why the membership is not worth the cost. Over the last few reports I have tried to list some reasons (including Insurance, Affiliated clubs, CEPT's, QSL Bureaus, Antenna interventions, (insert your own favourite here _____) and advocating for Amateur Radio to National, Provincial and Local governments.) Membership in RAC has value beyond TCA. I hope this may have convinced you to join RAC. And if you have joined thank you and would you consider asking a fellow Amateur to join as well. I envision a future of RAC where RAC will be a strong national voice representing all Canadian Amateurs who are also members of RAC. I hope you will be a part of this vision.

To obtain other sources of revenue the Directors will be recommending some thoughts to increase revenue in the future and after the meeting I will tell you about them. If you have an idea please send me an email.

We are also looking for input on changes to the way RAC is run from a governance point of view. What would you do to make RAC more in touch with its members and more importantly make it easier for members to be in touch with the executive. Remember when I get an email from someone saying "Somebody should do (insert your idea here) and I always ask back, "Great, can I call you

somebody". If you propose an idea I hope you will help bring it to fruition.

Speaking of how RAC is run, we are still looking for a Treasurer and other Executive positions. Have you just retired and have some skills that RAC can benefit from? Do you have a flair for fundraising or publicity? Send me an email and tell me.

If you have any questions or concerns please email me at ve3xt@rac.ca

Bill VE3XT, NE Ontario Regional Director

BERU

The competitive side of amateur radio has always been the spur to improve knowledge of receivers, transmitters, antennas and propagation as well as the quality and efficiency of communication skills.

The Radio Society of Great Britain (RSGB) created the British Empire Radio Union (BERU) in the late 1920s to support radio amateurs in the Empire. In 1930 a New Zealand radio amateur suggested that a week should be set aside as an 'Empire Radio Week' and that this should be held in February 1931. This was the first BERU Contest. The contest proved to be very popular and has been held annually since then. It became known as the Commonwealth Contest in 1973. The 2013 contest will be the 76th.

In 1937 someone caught the sense of anticipation just before BERU starts. Zero hour approaches, watches are synchronised, cigarettes stored in, pencils sharpened. The DX bands resemble a country village in their quietude and then - the storm breaks. Dah Dit Dit Dit Dah; Dah Dit Dit Dit; Dit ; Dit Dah Dit; Dit Dit Dah echoes across the world, amateurs in foreign countries hastily examine their atlases for a clue as to the whereabouts of the mystic country BERU - discovering, if they are lucky, that such a place [really does exist](#)

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2012-2013 Membership Application/Renewal

Ottawa Amateur Radio Club Inc., Box 8873, Ottawa, Ontario K1G 3J2

- Single \$25 (\$20 after Feb 1, 2013)
- Family \$30
- Junior \$15 (under 18 years of age)
- New Ham - Free (if licensed in current Membership year)
- Emailed *Groundwave* Mailed *Groundwave* (add \$10.00)

Please Note: Membership year is September 1, 2012 to August 31, 2013.

Family Name: _____ First Name/Initials: _____

Address: _____

City: _____ Prov: _____ Post Code: _____

Home Phone: _____ Work Phone: _____

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

Callsign(s): _____

Qualifications: Basic Advanced Morse Code
Year Licensed: _____ RAC Member? Yes

Other Family Members

Name: _____ Callsign(s): _____

Qualifications: Basic Advanced Morse Code
Year Licensed: _____ RAC Member? Yes

Interests: _____

Comments/Suggestions: _____

All members who are in good standing on or before the December General Meeting will be eligible for a free one-time name badge. Members who wish a second or replacement badge may purchase one at the Club Price (approx \$7.50 plus tax). Ordered badges will be available in January.

Do you want an OARC NAME TAG? Yes Second or Replacement Yes

ORDER DETAILS - As to appear on badge:

First Name _____ Call Sign _____