CCO RadioSport News

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The official newsletter of Contest Club Ontario. Devoted to the sport of ham radio contesting.

TANGO INDIA 5 NOVEMBER

Have you ever dreamed of operating a world-class multi-multi station? Tony, VE3RZ, gets an invitation to be part of the TI5N CQ WW DX SSB contest team in 2002. He shares what it's like to be part of a world-class contesting operation. Here's his story...

So after many emails and pre-departure planning, I started the flight to Costa Rica on Wednesday, Oct 23rd. The flight was via Chicago where I met up with Brian, KA7KUZ and Ed, W1EP, two other operators. We then flew via Mexico City and finally arrived in Costa Rica at ten minutes past midnight.

Baggage took another 20mins so by 12:30am we were outside and meeting Keko, TI5KD and Harry, AC8G.

San Jose, Costa Rica showing three of the four towers at TI5KD

After a short (20min) car ride we were at the QTH of Keko. Brian and I were too keyed up to sleep, so we went on 20m and worked a number of stations with the new TI5/VE3RZ call.

The next day, after breakfast we went to the bank to change travelers' cheques, took in some sightseeing in downtown San Jose, bought some souvenirs and then off to see the orchid farm of TI5NA.

This was quite a sight with many acres of ground under cultivation of orchids for shipment to Canada and the US.

Keko, TI5KD, our host, his wife Sofia and their children

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QRP ON 160 METERS—REALLY!

Brian, VE3MGY (VY2MGY/VE3), takes the low-power challenge to new heights as he takes on the Top Band.

I hope to accomplish two things with this article:

1. To encourage more people to get on 160m, either in a contest, or just to DX, regardless of their power level, and
2. To give people an insight and personal overview of what competing on 160 running QRP is really like, and what to expect.

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Welcome to CCO Radiosport News

by Bob, VE3KZ

As President of Contest Club Ontario, I would like to invite you to have a look at our inaugural issue of CCO Radiosport News.

Under the capable editorship of Peter West, VE3HG, Contest Club Ontario will spread the word about our activities and provide a medium for our members to tell some of their stories. CCO was founded in July 2002 and now, fourteen months later has approximately 100 members spread across Ontario.

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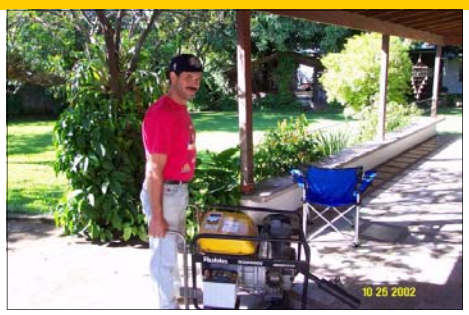
TANGO INDIA 5 NOVEMBER...CONTINUED

On return to Keko's place, we started to get the stations together for the contest. There was one room in which we had the 20m and 10m stations, next door the 40m station and then the 80m station was in the main house in Keko's shack. The 15 and 160m stations were in a warehouse just two doors down the street.

We had tried a wireless LAN to network the computers from the warehouse to the main area, however this did not work and we had to resort to 350 feet of CAT 5 cable.

One worry was that each day, the power failed for about 10 – 40 minutes. All had flashlights and Keko brought a 5Kw diesel generator.

He was trying this out to supply power to the guest houses when it was noticed



Standby Generator that didn't quite make it!!

that the regulation was not too good and very shortly the lights popped as the voltage surged. Fortunately none of the rigs were affected, however an MFJ switching power supply bit the dust.

Friday was a rush to finish the setup of all stations, Heil headsets and footswitches made up for all stations.

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The station setup was as follows:

- 160m Icom 751A plus TL922 amp. Inverted V antenna and loaded vertical at 80′
- 80m Icom 756 Pro plus Alpha 77. Delta loop and rotatable dipole at 100′
- 40m Icom 756 Pro plus Henry 2k3. 2 element yagi at 110 feet and 2 element quad fixed on US at 60′
- 20m Kenwood 940S plus Alpha 89 3 element quad at 100 feet, KT36XA at 80 feet, 4 element fixed on US at 60′
- 15m Icom 756 Pro plus Henry 2k3 5 element at 110 feet, TH6DXX fixed on S. America
- 10m Kenwood 940S plus amp 500 watts. 3 element quad, KT36XA (both shared with 20m), 4 element fixed on US at 50′

QRP ON 160 METERS (OR YOU CAN'T DO THAT!!!)

David L. Thompson, K4JRB, Administrator for the CQWW 160 Meter contest, stated in the 2002 160 contest results (CQ Amateur Radio magazine, Dec. 2002) that QRP entries in the CQWW 160M Contest had increased dramatically again this year.

What he didn't say, and what I do not know, is why. I personally think that maybe people are starting to realize that with a little bit of theory and a lot of patience, competing or DX'ing on 160 can not only be possible but can even be fun and rewarding even if your running with much less than 1,500 watts.

I will never forget the day in 1998 when I entered a well known radio outlet in Toronto and, by chance, ended up talking to another contester about competing on 160M. He said that he had won his division in a major 160 M contest a few years before but only because he was running 5KW (hmm, isn't that not only against the contest rules but illegal as well ??)

I let it go at that and then mentioned that I was starting to compete on 160 myself in the QRP category. I can still hear him laughing as he said "You can't do that!, You'll never work anyone or win anything!". Well on that note, and with three CQWW 160 M QRP First Place finishes, one World Record, as well as other Local, National and Continental Topband records under my belt, I would suggest to you that not only was he a cheater, but he was wrong. And for his information, I always run 4.5 watts not 5 watts, so that I would know for sure that I am not cheating, even if by mistake.

Propagation

Since there are some excellent resources for studying 160 M propagation, I will just briefly touch on the some of the basic points to remember for the budding topband Dx'er or contesting enthusiast. There is still so much more to learn vs what we already know about propagation on this band, as such this band has been rightly called one of the last great frontiers of amateur radio where discoveries can still be made and experiments conducted. The following rules apply only when they seem to want to, as there is no hard and fast rules, other than the fact that you will be propagating only by ground wave during the hours of daylight.

The following trends have been observed and discussed by topbanders, as well as the author, over the years:

Sunrise peaks, enhancing signals up to 30 db, can occur anywhere from two hours before to literally seconds before local sunrise on the Eastern end of a path and last from a few seconds to a few minutes.

The author has seen the band open and then close to the Pacific during the same CQ at sunrise!

TANGO INDIA 5 NOVEMBER...CONTINUED

Continued from page 2.

7 computers (all laptops) were configured with Writelog and the network checked. Trained couple of operators who had not used Writelog before.

We had a special call for the contest – TI5N, and Tango India Five November became a very familiar phrase!!

Contest started for me on 40m wall of QRM but punched hole and started to run Europe and NA. After 2 hours on 40, moved to 80m and then to 160m.

From then on, it was follow the schedule that Harry, AC8G had made up and see where you would be next operating.

Highlights of the contest – having 2 hours on 10m with 453 QSOs including a 245 hour. With 15 and 20 running at the same time, the combined rate was over 600/hr.

Good pileups

Had a very good pileup on 40m on Sunday morning after sunup. Ran Asia, JA's, DU's, 9V's, then had a ZL call for double mult and he told me there was a VK6 in Zone 29 calling me – worked him for another double mult.

Recognized some of the calls from Ontario, particularly working VE3DC, VE3EJ, VA3SK etc.

Final score was as follows:

Summary:

Band	QSOs	Zones	Countries
160:	147	8	20
80:	842	25	71
40:	1463	29	103
20:	3144	36	136
15:	4036	36	154
10:	2318	27	107
Total:	11950	161	591

Total Score = 21,836,952

List of operators was: (left to right) back row: AC8G Harry, Bruce KD6WW; next row: Keko TI5KD, Joe K8QOE, Brian KA7KUZ, Ron WA8LOW; next row: Ed K1EP, Ron N0AT, Sid NH7C, Tony VE3RZ, Ron W8ILC; front row: Keith K6GXO, Don N6JRL, Eric W8KKF.

The day after the contest, most people went on a sightseeing trip to one of the local volcanoes. I stayed behind and

VE3RZ at work in Costa Rica

worked about 450 QSOs on WARC bands, including some big pileups on 30m. All too quickly the time passed and it was off to the airport on Tuesday morning, at 4:00am (for a 6:00am flight!!).

So now the contest is over, the memories are packed away so this year – BACK TO TI5N!

This time with a dedicated team of contesters – we will be looking to come first in North America – we only came second in 2002!! KC1XX beat us…… not this year……in 2003 we will float like the butterfly and sting like the bee!!

(no regrets for the quote!).

There will be 10 ops so will hopefully be awarded 1/10th of the score for CCO!

GO CCO GO!

73 de Tony, VE3RZ

QRP ON 160 METERS (OR YOU CAN'T DO THAT!!!)

Sunset peaks are more general in that they typically occur about one hour after Sunset on the Western end of a path and can last longer than Sunrise peaks. Midnight midpath peaks occur when it is midnight, midpath, between the transmitter and receiver on East to West paths. There can be grey line propagation when both stations are in twilight, dark line propagation when one station is in twilight while the other is in darkness, and black line propagation when both terminals are in darkness. Skewed propagation happens when a, as of yet unconfirmed, mechanism occurs that causes 160 Meter signals to arrive from paths other than the short path bearing to the transmitter and other than the long path bearing to the transmitter. I have experienced this firsthand when Japan was uncopyable on my North South beverage and audible only on my East West beverage - almost 90 degrees off the short path bearing to Japan! The last trend is my favorite and I will call it "RMP" for "Reverse Murphy Propagation" because some times when you fire up the gear you will hear Europe or South…

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QRP ON 160 METERS (OR YOU CAN'T DO THAT!!!)

America or even Africa booming into your headset and the reason or reasons cannot be readily explained using the above trends. Some time things just happen for no obvious reason. So to sum up propagation on this band is easy. I can tell you when openings should occur but no one can tell you when they will occur! Hence the mystery, magic and challenge of this intriguing band.

Power Levels

Using QRP (< 5 watts) or even low power (< 100 watts) on 160 is, in my opinion, more of an art than a science. (By the way 100 watts is considered QRP on 160 by most amateurs who hang out there!) Topband is an area of allocated amateur radio spectrum where it is more often a case of what is possible as compared to what is probable as far as propagation is concerned.

We all know that running 5 watts on 10 meters at the top of the Solar Cycle could easily get you a 10m DXCC on a weekend in a major contest. Now try the same thing at the other end of the spectrum and I will assure you that you will be in for a huge surprise.

Firstly, of all the amateur allocated spectrum we currently inhabit, QRN on 160 is second to none, thanks to the inverse square relationship that exists between RF frequency and atmospheric noise. Secondly is the size of antennas needed to TX and RX with at least some sort of efficiency. This does seem to limit the number of people able to get out on topband, but as we shall see, even if you are "acreage challenged", that does not mean that you can't work topband and maybe even some DX.

I have been competing on 160 running QRP (4.5 watts actually) since 1998 and every year brings a new contest season and new conditions on top band. Where openings to the Caribbean, for example, may last through the hours of darkness running 1500 watts, and may last for hours running 100 watts, I have found that you will be lucky to have an opening for two or three minutes, if at all, running QRP.

The same thing applies to circuits into the Mid Western United States and the West Coast. And if the propagation is there to support the path, then you have to have a high enough SNR (signal to noise ratio) that is acceptable on both ends, so that a QSO can be made.

That is where having the absolute best TX antenna you can put up, in order to maximize your signal, comes into play as well as having the absolute best RX antenna to minimize the QRN and or local EMI that you may have to deal with. I have been very fortunate in that my QTH is about 1200' above Lake Ontario and slopes down in all directions within a few wavelengths of my antennas on 160.

This gives me a lower TOA relative to the horizon than I would normally have if I was, say at the edge of Lake Ontario with the same antenna. Another advantage I have is that I live in a rural location and as a result I have no EMI and my ambient background noise in the winter is usually S0-S1 at most. (In the spring and summer I suffer with the 40/9 lighting induced QRN like everyone else .)

On the topic of lightning, most thunderstorms that produce lightning in North America occur between April and October, with up to 36,000 strikes per hour (10 per second) being measured by lightning detection equipment across the country. This is when operating on topband is more of a challenge as opposed to an enjoyment. In the winter months though I regularly see zero strikes being registered in North America. Then all you have to worry about is the tropical and trans equatorial induced QRN.

Antennas

Before we consider antennas I will describe mine and please take note that none are at the height or expense you may think you need to go to be competitive or just to be heard.

I might also add that the following represents 6 years of ideas (some good, others terrible) and many experiments. During this time I have used the Inverted L antenna about 90 % of the time for contesting and DX'ing and seem to keep coming back to it as probably the best all in one antenna I have. The mainstay at VE3MGY for topbanding is an Inverted L with 55' vertical and 80' horizontal, sloping down at about a 20 degree angle.

This is fed against 104 1/4 wave radials which gives me about 15,000' of counter poise. This antenna was reconfigured to a T top vertical for one contest / DX season (with mixed results) and then reconfigured back to an Inverted L.

A 160M horizontal loop (also called a sky wire) that is 25' above the ground and fed with 450 ohm ladder line.

Two full size 80m quad loops, one running North South and the other running East West.

Two non terminated 540' beverages, one running East-West the other running North-South.

Bearing that in mind, another factor to consider on topband is what is the best antenna to use for TX and RX?? What's better for DX vs contesting??

Again, personal observation from Orono over the last 6 years, has found that a vertically polarized antenna with the horizontal polarization phased out, such as a T-top vertical, will out perform a high angle horizontally polarized signal, such as produced by a low dipole or loop, 85 - 90 % of the time for DX work.

The other 10 % is owned by the sunrise and sunset enhancements made by the solar induced terminator crossing over your site.

During this time ionospheric ducting can occur in the E, and possibility F, layers of the ionosphere and produce exotic and

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short lived DX openings. In order to take advantage of these openings, usually, an angle of close to 90 degrees is required for your RF to enter the duct. I have heard and worked VK6HD, in SW Australia, on my 160M loop, and have him be uncopyable on my inverted L, quads or beverages—this is probable ducting propagation.

Two mornings later I had another opening to VK6HD

Two mornings later I had another opening to VK6HD but this time I could only work him on the Inverted L - highly probable sunrise enhancement propagation only.

In most 160M domestic contests you want to work anyone and everyone you can so NVIS (near vertical incident skywave) communications may be the way to go. Out to about 750 miles, I have found that an antenna with a high take off angle, relative to the horizon, will usually, but not always, out perform the Inverted L vertical. In one contest this last season I found that close to 30 % of the stations I worked out to 750 miles never heard me on the Inverted L and only responded when I called on the horizontal loop. I guess the moral here is that one should never profile a certain antenna for a certain job as propagation polarization is, especially on top band, an ever changing dynamic phenomenon. Such an antenna could be either a low dipole or low loop. (In this context "low" refers to any antenna erected at less than ½ wavelength which is equal to 280' on top band.) I tend to use the Inverted L to fill in the gaps so to speak. However I feel that if you can or want to erect only one antenna for topband, the best compromise is to use an Inverted L, which is my primary contesting and DX'ing antenna and exhibits both Vertical and Horizontal polarization so that with one antenna you can get the best of both worlds. You don't need an ocean of radials either. When I first started on topband I was working DX and competing with only 30 radials and they weren't all a 1/4 wave length long either. Just put down as many as you can fit. Remember 20 40' radials will give you a much better signal than 6 70' radials because you want to cover as much ground under the antenna as possible to minimize ground return losses.

Using antenna analyzing software such as EZNEC, I have found that my inverted L antenna has a main lobe at 30 degrees (excellent for DX) as well as significant RF leaving at higher angles for close in work (ragchewing or contesting). That is not to say that a low loop or dipole would not be as effective, given certain conditions. For example, in a contest I will start calling a station on my inverted L and if that doesn't work I then try the horizontal loop and then lastly the quad loop. And usually one will work BUT in 5 minutes it will not work and another one will. Such is the unpredictability of top band.

In the early 1990's my first antenna was 300' of wire wrapped around a large oak tree in the back yard in the configuration you would use to decorate a Christmas tree (and I don't recommend using this antenna!) I have absolutely no idea what the RF lobes looked like on any frequency and it had no radials. I fed the antenna with 100' of RG58U. It shouldn't have even loaded for topband but since it did I got on anyway. Over the winter I worked 8 provinces and 35 states running 100 watts and living in downtown Toronto.

You can go QRV on Topband with a KW and a full size four square array and work no one all night long on Monday and then get on Tuesday night with a 100 watts and a dipole at 40' and work into Europe with 579 signals. Results on both evenings are due to propagation.

Since there is no documentation on competing strictly with QRP on 160 that I have ever been able to find, and I looked for years, the following are my opinions and observations from the last number of years doing this and as such you may or may not agree with them. But at least you will have the one thing I didn't have and really wanted - the knowledge of what it is going to be like, and what to expect, before hand. I feel that it takes a different kind of contester to sit in front of the gear for 30 hours over the weekend fighting QRN, knowing that he may only work a few dozen stations and will spend literally hours calling CQ with no response. It can be daunting when you see high power 160 M stations with 1000 + QSO's in their logs and you know that you have been running at 200 % for the entire weekend and all you can do is put maybe 100 QSO's in your log.

Likewise you can spend hours calling the same stations over and over, waiting for that one 30 second opening when you will have propagation, or a momentary lack of QRN, and hopefully not have someone else calling at the same time. And lets be honest, when you only work 80 stations in 30 hours, and miss 40 or 50 other stations that either can't hear you or are the result of broken QSO's that can't be logged by either station because you didn't make a good contact, your ego, if fragile, may take a beating.

At best it can be frustrating on even the most experienced contester. This may sound like I don't want you to try this band but it is just the exact opposite. I believe in being as honest and informative as possible so that there will be no surprises or disappointments when you arrive in the land ruled by QRN. And I wish I had had the opportunity find out what I was in for instead of writing the book, so to speak, as I went.

I can tell you that the first few years were very trying in the shack and I almost gave up competing on 160 QRP a thousand times if not more. Its very hard to get motivated when you don't know what to expect. Or you expect to work other stations and spend 2 hours calling CQ with no results. Its one thing to know that you are doing your absolute best but it can be depressing when the results don't reflect the effort.

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QRP ON 160 METERS (OR YOU CAN'T DO THAT!!!)

Another thing I learned is that you have to set rational goals for yourself. Again not knowing what to expect or how to deal with band conditions as they appeared, my expectations and goals were through the roof for the first few years. And even now that I can set rational goals and can usually work around problems as they occur, I will never know before hand when an opening will occur, or when conditions will rapidly deteriorate and as such I never go a complete weekend without revising my goals at least once to stay motivated and competitive.

If you do decide to try 160 don't expect the same rates as you would on any other band. I have worked just under 300 stations over a weekend running QRP, but this is very rare, and average rates of about 6 QSO's per hour are inducive to competing on this band. I would definitely recommend any other band to a budding single band contester so as not to discourage them right off the start. I would also recommend running as much power as you legally can if you're thinking of getting started in DX'ing on 160 just to keep the frustration level as low as possible at the start.

I have made up what I call the 5 P's for topband. They are patience, perseverance, persistence, propagation and prevalence. You have to have the patience, whether your QRO or QRP, to continually check the band for those DX openings. This could be every evening or morning through out the winter months if your DXing, or every 5 minutes through out a weekend if your contesting. When the openings aren't there and the QRN is 40 /9, you will need the perseverance to hang in and wait for better conditions (if your competing seriously then you have to hang in until sunrise).

If you have the persistence over the winter (or over the weekend if contesting) then you just may get the propagation which will let you prevail in the most challenging sport I know.

So to sum up don't sell yourself or your antenna short. If you can get out on 160 then all you need is the 5 P's and a few quiet evenings in the winter to work DX or compete in one of the contests.

By the way, I have worked 60 countries in the last 5 years running only 100 watts and have not been DXing either consistently or seriously during that time. I have only one aspiration for the future and that is to be invited to operate at a one of the Big Gun contest stations to either do a SOSB 160 M or be the 160 M operator in a Multi Multi entry and to run the legal limit for once on my favorite band.

I hope to hear you on Amateur Radio's last wild frontier!

73, Brian VE3MGY & VY2MGY/VE3

2nd Annual CCO BBQ Door Prize Winners

Congratulations to each of the winners of a door prize at the recent 2nd Annual CCO BBQ, held at the QTH of John VE3EJ. Please make note of the sponsor of each of these prizes, and remember them when considering what or where to obtain your next piece of radio-related merchandise. Their generosity went a long way toward ensuring the success of our BBQ, for that, we offer our sincere thanks. 73 Travis VE3WO ve3wo@rac.ca

Door Prize #1:	a GRUNDIG FR-200 self-powered emergency radio (retail value CAD 49.95)
Courtesy of:	DURHAM RADIO – http://www.durhamradio.com
Winner:	VA3PC, Paul Caccamo
Door Prize #2:	a RIGBLASTER PLUS soundcard-to-xcvr interface (retail value CAD 199.99)
Courtesy of:	RADIOWORLD – http://www.radioworld.ca WEST MOUNTAIN RADIO – http://www.westmountainradio.com
Winner:	VE3DZ – Yuri Onipko
Door Prize #3:	a ONE-YEAR SUBSCRIPTION TO CQ MAGAZINE (retail value approx CAD 60.00)
Courtesy of:	CQ COMMUNICATIONS – http://www.cq-amateur-radio.com
Winner:	VE3WO – Travis Fitzgerald
Door Prize #4:	a ONE-YEAR SUBSCRIPTION TO CQ MAGAZINE (retail value approx CAD 60.00)
Courtesy of:	CQ COMMUNICATIONS – http://www.cq-amateur-radio.com
Winner:	VE3BW – Joe Adams

Radioworld helps out

Thanks to Jack Summers at **Radioworld**, CCO was able to purchase at a discount the CD's we gave away as prizes in the name the newsletter contest held earlier this summer. In addition, Jack has authorized a limited time discount on accessories to any reader who mentions the ad (right). This special pricing cannot be combined with any other promotions or discounts. Thanks again to **Radioworld.**

The sCCOre AWard

Contesters come in many flavours, from the HP single-ops who work all 48 hours, to the casual op who'll put in a few hours here and there to help out the Club.

As you've heard many times, every score is important to CCO, regardless of the size or level of effort.

In an attempt to recognize those who make ongoing contributions to CCO club scores, Contest Club Ontario has introduced "The sCCOre Award".

The purpose of the award is two-fold: to encourage participation in as many club competition contests as possible, and to reward those who contribute significantly to CCO totals in those contests.

Full rules for this new award are to be found on the CCO website under "sCCOre Award", and the program is administered by the sCCOre Award Scorekeeper, Peter VE3SUN.

Not everyone has the capability to put up big numbers in every contest, and this is reflected in the rules for this new award.

Briefly, to "level the playing field", rather than award sCCOre points "one-for-one" based on actual scores submitted for each contest, a system is used to "pro-rate" your score against the highest single-op score in that particular contest.

If the top single op score in a contest was 8 million pts, that op earns 1 million sCCOre points toward the sCCOre Award.

If you posted 2 million pts in that same contest (25% of the top op's actual score), you get 25% of the top-op's sCCOre total: 250,000 sCCOre points. Those involved in multi-ops will use their share of pts for pro-rating against the top single-op score.

Every contest which includes a club competition is used in sCCOre Award calculations; you can check the list of eligible contests at the CCO website:

http://www.qsl.net/cco/

The sCCOre Award will be a lovely wooden wall plaque, awarded annually to those CCO members who have reached the 5-million point level that year.

Additional endorsements (ie. plates that can be attached to the initial 5-million pt plaque) will be available for those reaching levels of 10 million pts, 15 million pts, etc. Based on calculations made by Bob VE3KZ, it will take the average active CCO member 2 to 3 years of active competition to reach 5 million points.

As such, being awarded the sCCOre Award will truly be a remarkable achievement.

All eligible contest scores from January 1 to December 31 will count towards the award for that year. Initial awards and endorsements will be processed once a year based on Award Points as tabulated by the following August. All Award points are cumulative from year to year.

The first year of sCCOre operation will be the calendar year 2003, with the first sCCOre Awards being handed out at the 2004 Summer BBQ.

sCCOre Award standings for 2003 will soon be posted to the CCO website, and will be updated regularly after the final results for each contest are published (we're still working on the software to get this done, but should be up and running very soon).

This is the highest level of achievement available to CCO members – start the march toward YOUR sCCOre Award now!

73 Travis VE3WO

ve3wo@rac.ca

Club Competition - How Are We Doing ?

Here are the results so far for the 6 Club Competitions in which CCO participated and for which we have the results.

ARRL 10m Contest 2002 – 2nd

California QSO Party 2002 –2nd

WAE DX Contest 2002 – 4th

ARRL 160m Contest 2002 – 5th

ARRL Sweepstakes 2002 – 12th

ARRL VHF Sweepstakes 2003 – 15th

Nice going Folks! Bring on the new season!

Gathering of Contesters

Over 40 of Ontario's top contesters came from as far away as North Bay and Ottawa to attend the second annual meeting of the Contest Club Ontario on Saturday, August 23. Four members of the Oakville Amateur Radio Club, VE3RZ, VA3GGF, VA3EC and VE3HG attended.

The gathering took place at John, VE3EJ's QTH located south of Hamilton on top of the Niagara Escarpment. One of North America's most competitive contesters, EJ's location boasts four towers in excess of 100' each with multiple rotatable and fixed beams. There's a four-square (four verticals connected by a phasing coaxial harness and fed into a huge radial ground system) for 80 meters. Most of the antennas are fed with hardline which terminates in a switching closet in the shack.

Contest Club Ontario is a province-wide club formed to allow Ontario contesters to join with other like-minded competitors in this province.

The contest club category is becoming increasingly popular allowing operators the chance to win in their individual categories while still applying their scores to an overall score.

The club will be sponsoring trophies and plaques in future contests in an effort to promote the sport of radio contesting in Ontario and elsewhere. As there is at least one contest every weekend, there's lots of activity to for everyone.

This article originally appeared in the Oakville Amateur Radio Club's Hot Bananas *newsletter.*

Welcome to CCO Radiosport News...continued from pg. 1.

The club has targeted 34 weekends during the year where we try to put Ontario and Canada on the competition map.

These include 21 contest weekends where we compete with other similar clubs world-wide for top honours as a group, adding all our scores together, often over two or three weekends, a total of 13 club competitions. In addition, we enter teams of 5 or 10 stations in 12 four-hour North American Sprints and ten-hour North American QSO Parties. We participate using CW, phone, and Digital, HF, VHF, and LF 160m. In addition we encourage participation in the RAC contests and the Ontario QSO Party. I want to thank the present members for their outstanding participation during the first year of CCO's existence and to invite those of you who are not yet members to consider joining. Do you participate in any contests? If you do, you can become part of something bigger than an individual scorer. Please visit the CCO web pages at www.qsl.net/cco and see more about what we have done so far and what we are doing. Also in this newsletter, check out our standings so far for last year's contests, check out the SCCOre award available to our members, and the rest of the features.

QRT by VE3HG

I hope you've had as much fun reading the inaugural issue of CCO Radiosport News as I had putting it together. Our next issue will come before Christmas. To make it happen we need your contributions of photos, articles and ideas. I am especially looking for members willing to write four columns per year on a contesting topic. A column need not be lengthy but it does need to be informative and we got some great experts in CCO.

Let me know what you think of this issue by sending an email to ve3hg@rac.ca. I want to thank all of this month's contributors and to thank the CCO executive for their support and encouragement. Let's continue to enjoy and grow our hobby of ham radio contesting. **Go Go CCO!**

73—Peter, VE3HG