



ORANGE COUNTY RADIO AMATEURS
(an ARRL Special Services Club)
Orange County, North Carolina



Orange County Radio Amateurs (OCRA) Newsletter
August 2009

From the Editor

Over one half of 2009 has passed. Shelby's around the corner or by the time you'll read this maybe already come and gone. I for one have spent way too much money on the hobby this year and need to implement what I have in my current possession, before pursuing further additions. With fall coming, temperatures moderating and carbide tip saw weed eater reincarnated (har, har, har Tim the tool man Taylor is back) I'm now ready to ask for assistance and descent on Steve's (KZ1X) QTH to lower a mouth watering Force 12 multiband 48ft. boom HF beam.

Also needed are: complete my near field grounding system, install UHF RF switches and VHF/UHF high gain areal. All this while working 50+hours work week, being a full time husband (yes with chores) and father; few. It just downed on me that all this RF work is so that I can talk with YOU more comfortably from my QTH. ????? ;)

This month I am very excited to introduce to you a new contributor for our newsletter, a true friend and gentleman (Steve W3AHL). Thanks for the article Steve, keep them coming.

To the rest of you, get some paper and pen and put some stuff down. If you are concerned about your writing skills don't worry; If I can do it you can!

As you can often tell my English grammatical structure is not "best seller" material but it is the price I pay for multilingualism. However you still put up with me (and some of you think I do a fair job, go figure) as your newsletter editor. Come on in, the water is fine.

73, Adriano KV7D

Board Meeting Notes

Items presented/discussed at the Board Meeting were:

- 1) Treasurer report. OCRA currently has \$6,675.04 in the bank, but the new repeater has not been paid for.
- 2) Repeater did not ship in mid July (no surprise here) as previously reported. Kenwood is awaiting the minimum 100 unit order before they manufacture and ship the unit. Purchasing a used unit was proposed, but the preference is to get one with warranty.
- 3) Wayne Estebrook (not present at dinner) will present to the club an update on UNC tower work.
- 4) Tim Bothe will present American Red Cross shelter mgmt info at the meeting.
- 5) Laurie Meier presented updated ARES script to the board. Some concerns were introduced on how net control would handle people not familiar with procedures and people with limited abilities. Laurie and Woody stated that the EOC is making a considerable investment in OCRA amateurs (there was no quantitative input as to what the investment was/will be). Committee's goal is to standardize **state** wide ARES nets including standardized training.
- 6) Agenda for meeting will be: 1) Very short member introduction (name, callsign), Mr. Bothe presentation so he can leave if he does not want to stay, then we will proceed with normal OCRA business.

Board meeting was closed at 19:09 (7:09PM).

de KV7D



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General Meeting Notes

- 1) Tim Bothe American Red Cross Director of emergency services for Durham, Orange, Grenville, Pearson counties was gracious to come and speak with us. His presentation gave a short overview on the history of the Red Cross (Red Cross was founded in Switzerland by Henri Dunant, the American Red Cross (ARC) was founded by Clara Barton. The ARC received congressionally recognized “federal instrumentality” status in early 1900 and was awarded solitary use of the now famous ‘red cross’ on white background insignia (which by the way is the exact color mirror image of the Swiss flag).

It is the desire of the local ARC Orange and Durham chapters to benefit from our skills and communications abilities, to garner our assistance at shelters by providing:

- a. Space to set-up equipment
- b. Safe and secure storing location for said equipment at the shelter(s).

A memorandum of understanding (MOU) has been drafted by ARC and OCRA (to be presented at a later date) underlying the working fiber of the two organizations.

- 2) Dewey Thompson July recipient of the coveted OCRA cup presented it to Dave Snyder (W4SAR) (sorry no pictures were available for the newsletter).
- 3) (Dan Edleman for Wayne Estebrook) UNC TV tower work (UNC-TV antenna relocation) is progressing, Dan observed this from a distance using binoculars, and has noticed that the platform once available for standing/working on equipment after exciting the elevator is no longer there making walking at 1200’ a bit dangerous.
- 4) Chris Pope and Clint Osborn removed the radios from the EOC bus. Chris told the group that Orange county had no interest in attempting to maintain such an old and dilapidated vehicle. The EOC is planning to put the bus up for auction, therefore ending OCRA effort to use it as an amateur MCU supported by Orange county.
- 5) Laure Meier (N1YXU) updated the group on the new ARES net procedures update effort as well as conducting a screenplay on the newly created ARES script with assistance of some committee members.

de KV7D

Newsletter format (going forward)

Newsletter format will start with:

- 1) Secretary’s opening remarks
- 2) Board meeting report
- 3) General meeting report
- 4) QSL Card(s) of the month
- 5) Editorial write ups
- 6) Community involvement by our club
- 7) Miscellaneous information

Until next month.....

Adriano – KV7D
KV7D@ncocra.org



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QSL Card of the month

<p style="text-align: center;">VE3CX</p> <p style="text-align: center;">Tom Haavisto RR 1 7-20 Kaministiquia, ON P0T 1X0 Canada Loc:EN58ft ITU:4 CQ:4 10-10:11671 Yaesu FT-1000, QRO HF-2500 DX Amp Hy-Gain 205 at 20M, slopers for 80</p> <p>To: KI40TN This confirms our 2-way SSB QSO Date: March 30, 2008 Time: 22:14 UTC Band: 40M UR Sigs: 59</p> <p style="text-align: right;"><small>an Electronic QSL from eQSL.cc</small></p>	<p style="text-align: center;">ZX2B eQSL</p> <p style="font-size: small;">WANDERLEY FERREIRA GOMES AV. 23 DE MAIO, 2966 AP.1320 SAO PAULO - SP BRAZIL Loc:GG66NI ITU:15 CQ:11 OPERATOR: PY2MNL</p>  <p>To: KI40TN This confirms our 2-way SSB QSO Date: March 30, 2008 Time: 23:56 UTC Band: 20M UR Sigs: 59</p> <p style="text-align: right;"><small>©Copyright 2000 eQSL.cc</small></p>
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Not having received any one else entries; this month's QSL cards are part of my (Adriano's) humble collection. My QSL collection does not fill any file cabinet drawer, but considering all were accomplished with 50W PEP or less via a home brew Carolina Windom at approximately 40' up, it is not too shabby for a still wet behind the ears ham. My hope is that (as things change) our government will still allow people like me who enjoy talking to far away places to have a small sliver of the RF spectrum to continue doing this. KV7D.

Orange County Amateur Radio Emergency Services (OC ARES) Update

By Laurie Meier, N1YXU

Orange County ARES Emergency Coordinator

Those of you who attended the August OCRA membership meeting witnessed a well (?) rehearsed preview of the updated net script. [Okay – it wasn't rehearsed a whole lot!] The updated script has been favorably received by the ARES members. In fact, after the first week the script was used, there were two suggestions which have been added to the script. The suggestions include (1) commenting on the length of the training and (2) having the backup net control secure last. Please keep making suggestions as we all continue to use the updated script.

If you have checked into or listened to the Saturday morning ARES net, you have also noticed that short training segments have been included. The first training was a demonstration of back-up net control taking over when the primary net control operator was unable to lead the net. Additional topics over the next few weeks will include –

- Reviewing the basics of a resource net and checking into a resource net
- Testing the Code Red call-up process – OC ARES members should be receiving an email from Bruce Meier, N1LN, requesting validation and updates of key information. Contact information for OC ARES members will then be provided to the Orange County EOC for entry into the Code Red database. Code Red, a reverse 911 process, will be activated to test OC ARES members notification. Your feedback as to whether you have received the Code Red announcement will be requested on an upcoming ARES net. Be sure to answer Bruce's email to make sure your contact information is included in the Code Red database.
- Moving net check-ins from one frequency to a second frequency – The frequencies will be provided well in advance to make sure everyone has a chance to program radios.



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Many of you have received training in the past, and many of you have not. In either case, these training segments are focus on key areas of communications that we will use in a true emergency situation. If anyone has feedback about the training or recommendations for topics, please let me know.

Be sure to mark your calendars for Saturday, September 12! The EOC in Hillsborough has graciously agreed to hold a cross-agency training session. The OC ARES organization is requested to attend. Members of the EOC and other Orange County agencies will also be attending. OC ARES may be asked to participate in a multi-agency communications event at the end of October. Part of the training session will be in preparation for the event. This will be a great opportunity for OC ARES members to meet members of other groups with whom we may work in true emergency communications events. Some of the topics that will be covered are:

- Roadside safety – Note that this training is required in order to participate in the October communications event
- Go Kits – The importance and contents of Go Kits will be reviewed. Since there will be multiple groups attending, we will have a chance to see and understand the similarities and the differences in the Go Kits for different groups.
- ARES badges – Many of your badges are about to expire. ARES badges will be made/updated on-site.
- [I've heard rumors that there may even be some food involved!]

More information about the September 12 training session will be provided shortly.

Come join the ARES team at an upcoming meeting! Our next meeting is scheduled for Sunday, September 13, at the Hillsborough EOC. The meeting begins at 6:00. I hope to see you then.

“See” you on the Saturday morning ARES training net!

Best regards,
Laurie – N1YXU

Techie's Book Shelf

By Steve Wahl, W3AHL

For an excellent overview of lightning phenomena try *The Art and Science of Lightning Protection* by Martin Uman, Cambridge Press, 2008. This is Dr. Uman's fifth book on the subject and collects his 40 years' of research and opinion into a very readable volume. For the non-engineer, the pictures and graphs illustrate the concepts well and the few math equations have the key concepts explained simply in accompanying text.

Various international standards on lightning protection are compared, with brief technical analysis of some of their relative weaknesses. The explanation of how lightning affects underground cables (with pictures) is brief but convincing. Common myths about what works and what doesn't (dissipative arrays) are explained throughout the book. This book doesn't give the type of ham shack detail found in Polyphaser's out-of-print book or online articles, but will provide a good foundation of the big picture based upon current international research.

Available at Amazon.com for \$79, with a preview online of the table of contents, index and sadly only a few



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pages of the first chapter. (Also at the NCSU library – after I return it next month).

Also from NCSU's stacks I found a copy of the out-of-print *Physical Design of Yagi Antennas* by David Leeson, W6QHS, ARRL, 1992. This classic focuses on how to design and build yagi's that will survive the worst wind and ice. Dr. Leeson wrote this book as a result of his desire for a reliable contest station at his mountain-top QTH. There is a wealth of math, most of which distilled into spreadsheets still available online at ARRL.com. Several popular (pre-1992) commercial and ARRL Handbook yagi's are analyzed for survivability weaknesses and simple improvements to the designs are shown. Practical details on element connection methods, boom mounts, guying, mast sizing, rotator mounting and tower siting are well worth reading even if you aren't building a yagi from scratch.

The only minor caveat to an otherwise excellent book is the use of an early, flawed version of MININEC for electrical modeling of element stepped diameter taper. But anyone designing a yagi from scratch would probably model it with a current version of NEC2 or EZNec+ anyway (or copy a published design exactly).

Used copies of this book are occasionally available on Amazon.com at very premium prices! If anyone has a copy gathering dust, please let me know your price!

73, Steve, W3AHL

Our Rich Ham Radio Heritage (Number 14 of a series)

By Raymond Woodward (Woody), K3VSA

Back in the first half of the 20th Century, after hams discovered that radio signals in the HF range could travel around the world, there was a sort of "gold rush" to get stations on the air as people realized the potential of shortwave radio to reach audiences near and far, probably similar to the internet boom that we've experienced in our own lifetimes.

As opposed to groups promoting nationalistic or commercial views over the air, some Christian missionary evangelists saw radio as a means of disseminating the Good News gospel message of Jesus Christ through the use of this new technology. It made sense. After all, radio waves could reach places that missionaries couldn't go. One of those evangelists was a gentleman named Clarence Jones, who had a vision of establishing an international Christian broadcasting station. He determined that Central America would provide a good location for such a station, and, along with his wife, Katherine, began scouting out places of venue. Unfortunately, governments in those countries were not receptive to granting them broadcasting licenses, so they kept heading further south and hit paydirt in Quito, Ecuador.

The site and license having been obtained, they moved on to the question of equipment. They found somebody who was willing to sell them a used 5 KW transmitter, and they enlisted the services of one Clarence Moore, W9LZX, of Elkhart, Indiana, who volunteered to appraise the gear. Moore told them that it was a piece of junk and that he could build them a new and better 10 KW transmitter for the same amount of money. Since Moore was known to the missionaries as an upright man, they went with his idea, and the transmitter was built and installed. Their first target audience being the USA, a four element beam antenna was constructed and pointed at North America. As expected, it garnered good reception reports.

But unexpectedly, their antenna began to melt. Operating high power in the moist air at an altitude of two miles, their high-Q antenna began having corona discharge problems from the element ends. The aluminum elements got red hot at the tips and actually dripped molten metal. Something had to be done, and quick! It fell



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to Moore to solve the problem. Here is what Moore himself had to say about the matter, as quoted in Bill Orr's (W6SAI) excellent Quad Antenna Handbook:

"We took about one hundred pounds of engineering reference books with us on our short vacation to Posoraja, Ecuador during the summer of 1942, determined that with the help of God we could solve our problem. There on the floor of our bamboo cottage we spread open all the reference books we had brought with us and worked for hours on basic antenna design. Our prayers must have been answered, for gradually as we worked, the vision of a quad-shaped antenna gradually grew with the new concept of a loop antenna having no ends to the elements, and combining relatively high transmitting impedance and high gain."

A two element quad antenna was constructed and installed and quickly proved itself to be the solution. With no "ends" on the elements, no high voltage would be there to produce the arcing. Moore's "pulled-open folded dipole," as he referred to it, had saved the day. When Moore returned to the USA, he applied for and received a patent on the new creation. Station HCJB succeeded such that virtually every shortwave listener worldwide has either heard HCJB or heard of it. And the thousands upon thousands of Amateur Radio operators who use and swear by quad antennas to this day can thank Moore for them. (Or God, perhaps?)

This would have been a good story in itself, but, as Paul Harvey used to say, here's the rest of the story: When Clarence Moore returned home to Elkhart, he saw a need for better audio public address equipment than what was available, and he founded what became Crown International, a firm whose name is synonymous with the highest quality PA gear. Moore maintained his interest in Amateur Radio up to the end of his life. He had an HF station right there at the factory for his ham employees to use. What a great place to work that must have been!

Today, Clarence's callsign, W9LZX, is proudly memorialized as the club call of the Elkhart County Radio Association. They put up a VHF repeater with its antenna located about 360 feet on a 500 foot tower belonging to broadcast station WFRN, which was founded by Clarence Moore's son Edwin.

I wonder, is it a quad antenna? That would be so fitting, wouldn't it?

K3VSA

NVIS Antenna Tip

By Bruce Meier (N1LN)

If you are building your NVIS antenna for either your GO KIT or for your home station, here is something to consider when you select what installation height is the best.

The following was taken from the TOWER TALK reflector so I can't take any credit for the accuracy of the information contained.

Happy Antenna Building,
Bruce - N1LN

Maximum NVIS signal occurs when the antenna is 1/4 wave above ground (33-35' on 40 meters) - not at 1/8 wave (16').



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Any analysis that recommends heights at or below 1/8 wave is flawed in that ground losses are being ignored (work done by the DOD).

At an antenna height in the 20 to 25' range a 40 meter dipole will have a feed impedance in the 50 Ohm range ...

There is no justification for the very low 8-15' heights when elevations as high as 45 feet will provide increased high angle radiation (> 60 degree TOA), lower ground losses, and higher feedpoint impedances.

73,

... Joe, W4TV

The President's QRM

(August 2009)

I'm pleased to welcome our newest OCRA members, Steve Mills (KJ4NPD) and Mark Ferrell (KJ4NPF). You might remember that several months ago, the club agreed to proposal to extend a free one year OCRA membership to anyone who passes his or her license exam at an OCRA-sponsored test session. All they'd need to do is attend a subsequent OCRA meeting to claim the membership. Well, Steve and Mark are the first two, of what we hope will be many, to partake of that privilege. Welcome to you both!

Those of us who hang out at Bojangles on Saturday mornings were surprised to see Deron Lundy (K8OSU) and his XYL there a couple weeks ago. As some of us old timers remember, Deron was an OCRA member some years ago until real life had him move away. I can recall that Deron, a dyed in the wool buckeye, would always use the phrase "Ohio through Tango" whenever he called the ARES net. Yes, the "OSU" in his callsign refers to none other than Ohio State University, known to hams far and wide as the school where the famous antenna guru John Kraus (W8JK) hailed from. Deron might be moving back into our area, and we'd be glad to have him again.

The ARES meetings we've been having for several months have been a real team effort and are now beginning to bear fruit that the rest of the membership can see. We have a new and more relevant net script that will be our standard operating procedure for the Saturday morning ARES net. We'll soon have a Saturday training session on the schedule (see the ARES article elsewhere in this issue for the date) which will include making photo IDs and a safety briefing to qualify us for upcoming events in the works. I understand that there will even be Bojangles biscuits provided, so those of us who are hooked (such as myself) need not forgo getting their "fix." I certainly hope that any OCRA member even remotely interested in emergency service will attend this session. Emergency service is one of the major reasons why we're allowed the use of our spectrum space, so it's something we all need to take very seriously if we want Amateur Radio to continue to exist. The Shelby Hamfest will take place soon, and I'd like to say that I'm going, but I'm still not sure if I'll make it.

Having to buy a new battery for my wife's car this morning when it wouldn't crank after church did not help our budget any. I had been hoping I'd be able to get one of those closeout ICOM ID-800Hs from GigaParts, but no go. Well, if not Shelby this year, maybe next. I hope YOU get to go, and if you do, be sure to take some pictures and write it up for the September OCRA Newsletter!



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Until next time,

vy 73 de Woody K3VSA

10 Meter SSB Net – Alive and well

By Bruce Meier (N1LN)

Last month I reported that 10 meters was starting to open and the sun spots were coming back. Well, guess I spoke MUCH too soon. I read an article earlier this week that stated that there have been ZERO sun spots sighted in the last 30 days. That just about aligns with my statement that they are coming back. I will now stop talking about sun spots! Let's change the subject to local propagation. For this month I am happy to report that without exception everyone that checked in could copy everyone else that checked in. Signals might not have all been S9+10, but copy was Q5.

Here is one for Adriano. I stopped using my amp and decided to run 100w. My signal may have dropped a few db, but those extra db were not needed for local copy. You don't need a KW to join us the net. We have had a good month with many regulars checking in every week, but many of the early regulars have gone missing. Hey there - come on back.

August 3: 6 check-ins

August 10: No net due to OCRA membership meeting

August 17: 7 check-ins

August 24: 12 check-ins

As always, come join us and share your comments, thoughts, ideas, and fellowship.

See you on the air @ 28.450.

73,

Bruce - N1LN

REMINDER:

Location for the Monthly OCRA Meeting is: Orange Co EOC, 510 Meadowland Dr. in Hillsborough.

Direction to meeting site:

From Chapel Hill:

1. Take Martin Luther King ("Historic Airport Road") north toward Hillsborough.
2. MLK becomes Highway 86 (north towards Hillsborough)
3. Turn right onto Highway 70 Business at Hillsborough at the "T" intersection
4. Pass Meadowland Drive at the Triangle Sportsplex entrance to Meadowland office park
5. Turn right onto the second Meadowland Drive (Meadowland Drive is a loop), approximately six tenths of a mile from the intersection of Highway 86 and Highway 70 Business
6. Turn left into second driveway at 510 Meadowland (see radio tower), which is the location of Orange EOC



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From Durham:

1. Take Interstate 85 South toward Hillsborough.
2. Exit Interstate 85 at Highway 70.
3. Bear to the left and take Highway 70 Business at Wayside Baptist Church
4. Turn left onto Meadowland Drive
5. Turn left into second driveway at 510