



# MARS News

## Inside this issue:

A Letter from the President	1
Announcements and News:	
-Public Service Announcements	2
-VE Testing Day	3
-Field Day	4
-Budget	4
A Look at Longwave Radio	5
April 26th Club Meeting	7
May 3rd Board Meeting	8

## News from the President, May 2011

Hello All,



I hope you are enjoying the season this spring. The days sure have had changeable weather... one day it is warm and sunny, the next day it is cool or downright chilly, then we get spring showers or floods and lightning, hail or tornados... wow! Just goes to prove that old saying.. if you don't like the weather here, just wait a minute or two and it will change... Hi Hi!

But it also goes to show that we have to "Be Prepared" for whatever weather comes our way... Do you have a **Weather Alert Radio**, that could save your life? Are your spare HT batteries charged, and ready to use? Do you have all the MARS™, ARES™, and Skywarn® Emergency Net frequencies programmed into your radios? Think about it, and save a

life... maybe your own!

A quick medical update: On the 9<sup>th</sup>, my orthopedic surgeon did a complete major re-reconstruction of my injured left heel. He thinks it was successful, and I have been confined to bed rest since then. I hope to have my 'soft' cast replaced with a 'hard' cast very soon. Then I will have 6 – 8 weeks of convalescence, letting the many bones reform and heal, to be followed by many weeks of intense rehab. If I can, I hope to visit Field Day, regardless of whatever you may have heard.

I want to urge everyone to attend this month's MARS club meeting on the 31<sup>st</sup> of May. Our superwoman of a Vice President, Shelley – KJ4ATK has been working on a Super Program for the meeting.



**eQSL.cc**  
The Electronic QSL Card Centre

founder of the eQSL electronic QSL card service come to our meeting to speak about QSLing and eQSL. This month's meeting will be open to all of our members and all of the members of all the other Mecklenburg amateur radio clubs, so come early to get your seat at what should be a standing-room-only packed room.

I hope that everyone has reserved the weekend of June 25<sup>th</sup> and 26<sup>th</sup> for our MARS ARRL Field Day 2011, to be held at the Belk Scout Camp in Midland, NC. Kevin Keyes K4YYD is our Field Day Chairman for 2011, <mailto:K4YYD@w4bfb.org>



We can operate our stations from Saturday 2PM till Sunday 2PM, so for us it's a 24-hour event. **We need lots of radio operators and loggers to sign up**, and we need your help to **set-up and take-down** our Field Day stations. To volunteer for time slots, or help set-up/take-down, please go to Elena's KS4OX web page <http://ridemaps.com/fieldday/operators.php> to sign up.

We are asking that if you come out to Field Day, think about making a special dish or dessert to share with others. For a map to the Belk Scout

Camp: <http://sites.google.com/site/belkscoutcamp/>

For ARRL info about Field Day 2011, see: <http://www.arrl.org/field-day>

## **Announcements and News**

### **Public Service Committee News from Mary Hunt, N4MH, Chairperson**

Our next large public service event will be the MS Bike Tour that will be held on September 24-25, 2011. The event is going to have the same route as last year – with maybe just a few tweaks to the route. We will depart from Monroe and Pageland on Saturday with lunch in Hartsville, SC and then on to Florence, SC for the overnight stop. We will also have a route starting in Columbia, SC that will meet up with the rest of the route in Hartsville, SC.

Sunday morning we will end at Sunset Beach. I attended our first MS Bike Tour meeting in May. There will be a few tweaks to the route, but not many. It will be basically the same route as last year. Currently MS already has 600 cyclists signed up for the event.

It's not too early to sign up for the event. Go out to Elena's website: [www.ridemaps.com](http://www.ridemaps.com) and sign up. There will also be a link from Elena's website that will take you over to an MS Web Site. We need you to register on that website also. MS also has hotel information in Florence on their web site with rooms at discounted rates for the event.

We will be doing our CCTA Events again this summer. Our next event will be Wednesday, June 8 at Charlotte Motor Speedway. This is a great event and easy to work. We are the track marshals and are stationed around the track at strategic locations. We used handhelds with a simplex frequency. We have to be at the track at 6:00 as the event starts at 6:30.

The May 11 event was just completed and we got it in prior to the rain with 350 cyclists participating. Thanks to the following radio operators who supported this event:

Mary—N4MH; Tom—KA3VVJ; Jeff—KA4WYC; Auford—KU4PF; Barry—KC4SSS; Ray—N4APR; Stan—AJ4ZL and Brian—KK4BKO.

If you are interested in helping with one of these events, please contact Jeff Blythe, [ka4wyc@gmail.com](mailto:ka4wyc@gmail.com) or Mary Hunt, [mhuntn4mh@gmail.com](mailto:mhuntn4mh@gmail.com)

## Announcements and News, cont.

### Mecklenburg VE Team<sup>SM\*</sup> FCC Exam Session - May 28<sup>th</sup>

**NOTE: This will be the last session using the current Element 3 (General Class) Question Pool**



The **Mecklenburg VE Team<sup>SM</sup>** will be conducting an FCC Exam Session for all classes of FCC Amateur Radio Licenses on Saturday, May 28<sup>th</sup>, beginning at 9AM at the East Baptist church 6850 Monroe Road Charlotte, NC (East Baptist Church is located next to East Mecklenburg HS, near the intersection of Monroe Rd and Conference Drive)

*All are welcome to take exams. Applicants are requested to arrive by 8:30AM, to complete the registration process before testing begins at 9:00AM. You must bring a photo ID (drivers license OK), your current original amateur license (if any), **ONE COPY** of your current amateur license (if any, it will be submitted along with your exam), an original and a copy of any current CSCEs, plus the 2011 WCARS/VEC testing fee of \$10.00.*

Walk-in examinees are welcome, but you can help us staffing if you would register in advance by sending an email to [MecklenburgVETeam@W4BFB.org](mailto:MecklenburgVETeam@W4BFB.org) Call 704-948-7373 if you need additional information.

**Any 'special' testing needs, ie verbal exams, translators, etc. must be pre-requested at least two full weeks before the testing date.** (NOTE: While we will try to accommodate the needs of any applicant, the **Mecklenburg VE Team<sup>SM</sup>**, is an all-volunteer staffed VE Team and *cannot guarantee* that special need requests can be honored for all testing sessions.)

**NOTE: As of July 1<sup>st</sup>, the Element 3 (General Class) Q&A pool changes; this will be the last time the Mecklenburg VE Team<sup>SM</sup> will be using the current Element 3 Q&A pool.**

Thanks and 73, N4MH

\*Mecklenburg VE Team<sup>SMi</sup> now affiliated with both WCARS/VEC and ARRL/VEC

## Announcements and News, cont.

### Field Day ...Help Needed!



As Jodie reminds us, Field Day is June 25<sup>th</sup> and 26<sup>th</sup>, so clear your calendars! Field Day 2011 is returning to the Belk Scout Camp (formerly Clear Creek Scout Camp) located at 9408 Belt Rd. in Midland, NC. We will be set up on the Camporee Field. A map is at: [http://www.pack214.com/docs/Belk\\_Scout\\_Camp\\_Map.pdf](http://www.pack214.com/docs/Belk_Scout_Camp_Map.pdf), and you can get directions at <http://sites.google.com/site/belkscoutcamp/>. For ARRL info about Field Day 2011, see: <http://www.arrl.org/field-day>



Field Day begins at 2PM on Saturday June 25<sup>th</sup> and wraps up 24 hours later. We will once again operate as a Class A station using emergency power.

We still need more volunteers for set up on the afternoon of June 24, and there are plenty of operating and logging positions to be filled. As in the past, we'll have a Get On The Air (GOTA) station, and John White, WB2NHQ, will be our GOTA station coach. We'll also have HF phone and HF digital/CW stations. Plan to stop by around noon on Saturday for a Field Day cookout of burgers and hot dogs. Please bring a side or dessert to share.

We hope to see everyone out at the Belk Scout Camp on June 25<sup>th</sup> and 26<sup>th</sup> for a fun and successful Field Day!

Thank you to Elena for creating the online Field Day signup. Please go to [www.ridemaps.com](http://www.ridemaps.com) and click on the "Sign Up Now" icon to signup and participate!

We hope to see everyone out at the Belk Scout Camp on June 25<sup>th</sup> and 26<sup>th</sup> for a fun and successful Field Day!

73,  
Kevin, K4YYD



### Budget Input Sought

If anyone would like to add something to the budget, please call me at 704-948-6006 or email me at [trhunt3@gmail.com](mailto:trhunt3@gmail.com).

Thanks,  
Tom—KA3VVJ

# A Look at Longwave Radio

By John Covington—W4CC

For most of the last 90 years, ham radio has used the spectrum popularly referred to as shortwaves, or "200 Meters and Down" as described by Clinton DeSoto [1]. Much of our activity takes place in this spectrum using skywave (or ionospheric) propagation, primarily on HF and line-of-sight (VHF and above) propagation. There is another part of the spectrum that is often forgotten, but is interesting to us nevertheless: the longwave band.

The definition of longwave often depends on the technical interests of the person you ask. Frequency is inversely proportional to wavelength, so just as short waves correspond to higher frequency, long waves correspond to lower frequencies and medium waves are in-between. Since the AM broadcast band is often called the medium wave band, a common definition for longwave is the spectrum below the AM broadcast band. By other definitions anything below 500 kHz is considered to be longwave.

Two important characteristics of longwave radio are that antennas are almost always electrically short, and long distance communication takes place primarily with the surface wave component of ground waves rather than skywave (ionospheric) propagation. Despite this, amateur communications over very long distances are possible, particularly using low data rate modes and software defined radio techniques.

How long is a long wave? At 500 kHz, the wavelength is 600 meters, and a full-size quarter-wave vertical would be 468 feet tall. At WWVB's frequency of 60 kHz, the wavelength is 5000 meters, and a quarter-wave antenna would be 3900 feet tall! Since it is desirable to use vertical antennas for ground wave propagation [2], many stations use electrically short verticals with matching networks to achieve the greatest possible efficiency. Loop antennas can also be used, if the plane of the loop is vertical. Horizontal antennas radiate right into the ground and are not very effective.

## Non-Amateur Uses of the Band

Longwave is used for many purposes related to navigation. Although the old LORAN system was decommissioned a few months ago, there are still aircraft beacons and differential GPS transmitters in this band. The military also uses the low end of the band to communicate with submarines.

In Europe, broadcasters use the band from 153 to 279 kHz. High power plus propagation of the surface wave component of ground waves gives these broadcasts very long range, and they are sometimes received even on the US east coast.

In the United States, longwave is also used for PLCs (Power Line Carriers), used for power grid control and for automatic meter reading. While some of these functions are moving to fiber optic and VHF spectrum, much of it remains below 500 kHz. In the United States these are Part 15 (unlicensed) devices. Concern for the potential impact on the power grid is one reason the FCC has declined so far to authorize the 136 kHz band for radio amateurs in the United States.

## Amateur Radio Bands

Most amateur radio activity today in the longwave spectrum takes place in the 136 kHz band. While offered experimentally in several countries before then, the World Radio Conference of 2007 created a worldwide secondary allocation for the Amateur Radio Service at 135.7 to 137.8 kHz. Much of Europe has now granted access to this band to radio amateurs, but many other countries, including the United States, have not.

Since the entire band is only 2.1 kHz wide, only narrow bandwidths can be used. Most transmissions are either manual telegraphy or slow-speed digital modes such as QRSS and WOLF. Although there are a few sources of commercial equipment, particularly for receivers, most amateur longwave transmitters and antennas are built by the operator.

From 1996 until 2003, radio amateurs in the United Kingdom also had an allocation at 73 kHz. However, this allocation was eventually discontinued as the 136 kHz band was introduced in 1998 in the UK and over the next several years in other countries. The Radio Society of Great Britain provides Internet [3] and publication resources to support longwave ham radio activity and is a great source of information on the subject.

United States amateurs presently have no allocation below 1.8 MHz. However, there are experimental licensees (FCC Part 5) who are communicating in the 136 kHz and 500 kHz bands; and there are many experimenters in the 160-190 kHz band as permitted under FCC Part 15. Known as "LowFERs," these stations are limited to 1 watt input power and a combined antenna and transmission line

## A Look at Longwave Radio, cont.

length of less than 50 feet. Despite these limitations, reception of these signals over hundreds of miles away takes place regularly. No license is required, although many LowFERs are amateurs. There is an active QTH.NET reflector that discusses LowFER communications [4], as well as a message board sponsored by the Longwave Club of America [5].

### Future Longwave Allocations

Agenda item 1.23 at the World Radio Conference for 2012 (WRC-12) is to consider a secondary allocation for the Amateur Radio Service of approximately 15 kHz somewhere between 415 and 526.5 kHz. Recent discussion indicates that, if adopted, this would probably be in one of two forms:

472-487 kHz, or  
461-469 kHz and 471-478 kHz.

There is no great assurance that this will be actually adopted, but at least it is on the agenda for discussion [6].

### References

- [1] Desoto, Clinton. Two Hundred Meters and Down: the Story of Amateur Radio. Newington, CT: American Radio Relay League, Inc., 1936, 1985.
- [2] Poole, I., Ground Wave Signal Propagation. Surrey, England, UK: Adrio Communications Ltd., 2011. [http://www.radio-electronics.com/info/propagation/ground\\_wave/ground\\_wave.php](http://www.radio-electronics.com/info/propagation/ground_wave/ground_wave.php), retrieved April 6, 2011.
- [3] LF News, Bedford, England, UK: Radio Society of Great Britain, 2011. <http://www.rsgb.org/spectrumforum/lf/lfnews.php>, retrieved March 7, 2011.
- [4] Lowfer Info Page, QTH.NET, <http://mailman.qth.net/mailman/listinfo/lowfer>, retrieved March 7, 2011.
- [5] Longwave Club of America, <http://www.lwca.org>, retrieved March 7, 2011.
- [6] Amateur MF Allocation Moves a Step Closer, Newington, CT: American Radio Relay League, Inc., February 24, 2011. <http://www.arrl.org/news/amateur-mf-allocation-moves-a-step-closer>, retrieved March 7, 2011.

## MARS Club Meeting 04-26-2011

Mecklenburg Amateur Radio Society  
Club meeting of April 26<sup>th</sup> 2011

The meeting was opened by Jodie-KI4CXO at 7:30pm

Jodie introduced visitors and any license upgrades.

Mary Hunt-N4MH talked about the MS Charlotte Walk on April 16<sup>th</sup> that was cancelled due to the real threat of poor weather. The next major MS event will be the MS Bike Tour to Sunset Beach. This is during the weekend of September 24<sup>th</sup> and 25<sup>th</sup>. Plenty of Volunteers for manning Rest Stops and SAG vehicles will be required. This is the largest of our Public events and the club puts on a good show and provides vital support for the MS Society. You can sign up for this event on Elena - KS4OX's website at [www.ridemaps.com](http://www.ridemaps.com)

Shelley Eaves – KJ4ATK introduced Jerry Brewer - N4MIU, who in turn introduced Jimmy Holbrook - KB4GKI who is very involved in ARES & MARS to give us a talk about WinMor, and how ARES wants to use the WinMor system to handle emergency and routine traffic. Jimmy gave us a rundown of how the system was developed and then how it can be applied for use with emergency communications and tie into the NTS. This system can be used in conjunction with HF and Packet radio formats and ties directly into a series of servers placed at strategic locations throughout the world. It is a very reliable system for emergency and routine traffic and has a 99% reliability rate. The RMS (Radio Messaging System) has a 1-minute response time no matter where the message originated. Jimmy uses a SignalLink interface for his radio and computer, although a Rig Blaster or other interface can also be used. These are available thru <http://www.TigerDirect.com> or Ham Radio Deluxe to name a couple of sources. The program can be downloaded from [www.winlink.org](http://www.winlink.org). For more information on this system please contact Jerry - N4MIU.

Next month's meeting will be on eQSL presented by Dave Morris - N5UP.

Jodie had four ex Hamfest prizes that were not used, so a drawing was held and the following members won:

Robbie Finger— AC4ZX won a 2010 ARRL Handbook.

Bill Newsome— AC4ZR won a 2011 ARRL Handbook.

Barry May— KC4SSS won an ARRL Gift certificate.

Andy Hawkins— K4GKK won an ARRL Gift certificate.

There being no further business, the meeting adjourned at 9:00pm.

Submitted by:

Andy Hawkins-K4GKK

Secretary M.A.R.S.



## **Board of Directors Meeting 05-03-2011**

The monthly meeting of the MARS Board was held in room 4 at the Red Cross building on Park Road. In attendance were Jodie Rowland - KI4CXO, President, Shelley Eaves—KJ4ATK, V.P., Tom Hunt— KA3WJ, Treasurer; and Ben Antanaitis—WB2RHM, Barry May— KC4SSS, George Hohas— W4GEH, Stan Bagwell— AJ4ZL, Kevin Keyes—K4YDD, members of the Board. Andy Hawkins— K4GKK, Secretary, was not in attendance.

Minutes of the 4-5-2011 meeting were read and approved, by Tom and Barry.

April and Year to Date financials were presented by Tom Hunt. They were examined and approved.

Shelley Eaves stated that the May 31, 2011 meeting would include a presentation by Dave Morris—N5UP, and owner of eQSL. Arrangements for his transportation, lodging and a pre meeting dinner were made. The dinner will be at the Golden Corral, located on the Rt 51/Independence Blvd at 5:00 PM on the evening of the 31<sup>st</sup>. Also, members of the CQ and CDXA clubs will be invited to the meeting to see the presentation.

Ben reported that after purging the membership records of delinquent dues paying members and notification of the action, 6 members submitted checks.

Kevin spoke for the Equipment committee and stated that the Monroe Rd rental unit was about to be closed. Extra radio equipment and computers have been boxed and stored in the Park Rd club room. Other items, mostly old furniture, in the rental unit were given away.

Kevin reported that the Field Day arrangements were proceeding. A major concern and area of concentration will be the sign-up of club members to operate during Field Day weekend during the 24 hours that the club is scheduled to operate.



---

## **Board of Directors Meeting 05-03-2011, cont.**

New Business:

Tom and Ben talked about renewing the club's Liability policy and adding a new policy, for specific club equipment. The new insurance will again be through the ARRL. The Hayes group is the new administrator, underwritten by Hanover Insurance.

The meeting was adjourned at 8:25 PM

Submitted by

George Hohas— W4GEH

Acting Secretary

**Mecklenburg Amateur Radio Society – <http://www.w4bfb.org>**

**Club Meetings**

The Mecklenburg Amateur Radio Society meets on the last Tuesday of each month at 7:30 PM

We meet at:

East Baptist Church  
6850 Monroe Rd  
Charlotte, NC 28212

(Next to East Mecklenburg High School, near Conference Drive)

**Club-room**

Red Cross Building  
2425 Park Rd, Room 023  
Charlotte, NC 28203  
(704) 334-3900

**Club Repeaters**

Send	Receive	Offset (KHz)	Autopatch
146.34	146.94	-600	Yes
144.69	145.29	-600	No
144.63	145.23	-600	No
222.8	224.4	-1600	No
449.6	444.6	+5000	No

Mecklenburg 2m Emergency Net  
9:00 PM local time, daily on 146.94 (-600) featuring the ARRL  
Audio News feed on Sunday night.  
Alternate frequencies announced

**Club Officers and Board of Directors**

**President**

Jodie Rowland, KI4CXO, [ki4cxo@w4bfb.org](mailto:ki4cxo@w4bfb.org)

**Vice President**

Shelley Eaves, KJ4ATK, [kj4atk@w4bfb.org](mailto:kj4atk@w4bfb.org)

**Secretary**

Andy Hawkins, K4GKK, [k4gkk@w4bfb.org](mailto:k4gkk@w4bfb.org)

**Treasurer**

Tom Hunt, KA3VVJ, [ka3vvj@w4bfb.org](mailto:ka3vvj@w4bfb.org)

**Directors**

Ben Antanaitis, WB2RHM, [wb2rhm@w4bfb.org](mailto:wb2rhm@w4bfb.org)

Stan Bagwell, AJ4ZL, [aj4zl@w4bfb.org](mailto:aj4zl@w4bfb.org)

George Hohas, W4GEH, [w4geh@w4bfb.org](mailto:w4geh@w4bfb.org)

Kevin Keyes, K4YYD, [k4yyd@w4bfb.org](mailto:k4yyd@w4bfb.org)

Barry May KC4SSS, [kc4sss@w4bfb.org](mailto:kc4sss@w4bfb.org)

**Newsletter Editor**

John Forbus, NV4A, [W4bfbeditor@w4bfb.org](mailto:W4bfbeditor@w4bfb.org)



**Mecklenburg Amateur  
Radio Society, Inc**

Newsletter Editor:  
John Forbus, NV4A  
4586 Lynwood Rd.  
Sherrills Ford, NC 28673

[w4bfbeditor@w4bfb.org](mailto:w4bfbeditor@w4bfb.org)