



The Spectrum



Issue 09 06

September 2006

From the President

I hope everyone has enjoyed using the new 146.82 repeater at its new home in the Greenbrier section of the city. The first night we turned it on, thanks to ducting, we made contacts as far North as Boston! You never know what the weather will do with a radio signal.

We will be working next on getting the 146.61 repeater in good shape as well as bringing up the 440 repeater and 6 meters at the Greenbrier site. IRLP will also be coming shortly for VOIP repeater linking for your use and enjoyment.

The club has gone through a transformation in the 3 years that I have been involved with you. We have a new home and ham station to operate HF, UHF, VHF systems. We are now running an APRS digipeter to help with APRS traffic in Hampton Roads.

With all of the good things that are taking place, it's very easy to get carried away on the wave of progress and forget the simple things. Like our newly licensed amateur radio operators.

It is unfortunate in most amateur radio clubs that we are excited to get people licensed and on the air. However, most clubs do not follow up with helping these folks become better radio operators and enjoy the hobby. I have to include ourselves in this statement.

We have a lot of knowledgeable hams in our club. Won't you take the time to share that knowledge with the new folks? You could show a new amateur the correct way to operate on the air. You could help explain how antennas work. How about showing a new ham how to set up their station? To the hams that have years of experience, I could use your help. You are a valuable resource for the ham community.

To the new hams I would ask that you seek us out if there is something you need guidance with. From understanding what controls do what on an HF radio to what is the best coax to use on your antennas. We have people that can help. Seek me out if you like. I may not be aware you need help.

Want to learn how repeaters work? We have a repeater committee. We are going to be doing more repeater work shortly and we have people that would enjoy nothing better to share that knowledge.

To the public service people I would ask that you take the time to get with us when we are doing radio events so that you can become more comfortable operating your radio equipment. During a crisis, being confident in your ability to use your equipment can mean the difference between being a valuable resource or not. Plus you may find that there is something else you enjoy with amateur radio in the process.

Together, we can make CARS an example of what an amateur radio club should be. To do that we need to make sure we are not leaving out our new folks. They are our future.

73's
Keith, KG4ZXX

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Links of Interest

[Virginia Beach Amateur Radio Club](#)

[Portsmouth Amateur Radio Club](#)

[Home - KG4ZXX.COM - IRLP and much more!](#)

[Atlantic Basin Hurricane Tracking Chart](#)

[Virginia Beach HamFest](#)



Local Nets

SKYWARN NET Fridays 1900 hours.	146.820 MHz
CARS 2M Net Sundays 2030 Hours	146.820 MHz
CARS 10 Meter Net 2000 hours on Mondays CARS doesn't meet	28.400 MHz
Hampton Roads Public Service Net Mon-Sat 2100 hours	146.970 MHz
VBARC 10 Meter Net 2000 hours on Thursdays VBARC doesn't meet	28.400 MHz
Portsmouth "RagChew" Net Monday & Wednesday 1930 hours	146.850 MHz
Southeastern Virginia Traffic Net Sun, Tues, Thurs @ 2000 hours	146.850 MHz
Portsmouth Amateur Radio Emergency Services Net Fridays 2000 hours	146.850 MHz
Tidewater Radio Association WT4RA net Thursday 1930 hours (code drill follows net)	147.195 MHz

Upcoming Events

CARS Dinner Meeting

Monday, Sept 11, 6:30 PM
International Buffet
Sam's Circle
Chesapeake VA

Public Service/ARES

Wednesday, Sept 13th...7:00 PM
QRM Room

VA Beach HAMFEST

Sept 16th - 17th

WWW.VAHAMFEST.COM



APRS an Overview

At the August CARS Meeting, Butch Burke KE4AZL, gave a nice overview of APRS. This article goes over what Butch covered and expands a little bit more.

Bob Bruninga, WB4APR is the inventor of APRS. APRS stands for "Automatic Positioning Reporting System." It is interesting to note that in the technical site of the American Radio Relay League website, <http://www.arrrl.org/tis/info/HTML/aprs/aprs.html> APRS is defined as "Automatic Packet Reporting System." Since this system was developed for Amateur Radio, some are now referring to APRS as the "Amateur Positioning Reporting System." APRS is basically packet radio digital communication in broadcast or beacon mode with each station defined by its geographic location and characteristics set by the operator. The implementation of this system is done through software. For more information on packet radio, go to http://www.tapr.org/pr_intro.html.

All digital information that is transmitted must have a defined content, address and handling instructions. Just as with the postal system, information is contained inside an envelope with an address, a return address and handling instruction (first class, etc.) The ARRL National Traffic System messages have a header consisting of the number of the message, message priority, station, handling instructions, check sum, origination location, time and date. Modern electronic/computer files all have a description of the file at the very beginning in a section called a header. The header contains file type, file length, date and time of origination and any other special handling instructions and a checksum or other method to check for corruption of data.

Electronic files that are transferred, have delivery and origination addresses. Standards for the construction of headers for files are accepted worldwide. For maximum error correction, information is sent in small packets, which are often referred to as frames. A frame could be thought of as a page. Each frame has a header. AX.25 defines a standard frame of information used in packet radio, which is similar to the Transmission Control Protocol/Internet Protocol (TCP/IP) used by the Internet. A modem actually creates the frames in addition to sending and receiving the digital signal in the form of audio tones. Modems used for packet radio are called Terminal Node Controllers or TNC. Header information must be programmed into the TNC. The type of error correction is software dependent and is the basis for some of the different digital modes used in Amateur Radio.

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When there is only one recipient or addressee for the information, frames are transmitted in a numbered manner. The packet protocol allows the recipient to request specific numbered frames be resent if there an error is detected. When communicating in a broadcast or beacon mode, Unnumbered Information or UI-frames are used. This naming convention explains the term Unprotocol or Unproto, which is the packet radio mode for broadcasting data. In broadcast mode, the ability to correct errors is turned off. Frames are assembled in sequential order, but recipients do not have the ability to request numbered frames be resent if there is a problem.

As Bob Bruninga explains in the Foreword to [APRS, Moving Hams on Radio and the Internet](#) by Stan Horzempa published by ARRL, APRS was designed to be the packet radio equivalent of a Net and a beacon. The interesting feature of his system is that your station is defined not only by the name but the specific location based upon latitude, longitude and height above average terrain. This allows you to be located on a map. But the APRS packet file structure allows you to also send specific ID information displayed as an icon such as rover, dog, jeep, truck, bicycle, sheriff, truck stop, etc. Text messages and weather data can be sent using APRS. Furthermore, stations with Internet access can function as I-gates allowing APRS packet information to reach APRServers, that store received information and transmit it to an Internet e-mail address if properly specified in the file. Just as with any Amateur Radio Net, privacy is not a feature of APRS. For the actual specifications, go to <ftp://ftp.tapr.org/aprssig/aprsspec/spec/aprs101/APRS101.pdf>.

Your TNC must be programmed specifically for APRS. The information as mentioned above is sent as a UI-frame/packet. The software for APRS just as with Packet Radio does allow for local only or relaying of messages through digital repeaters or digipeaters. Most external modems can be programmed to enable you to use your radio as a digipeater. Relay instructions are specified in what is called the “packet path.” Obviously if everyone tried to access the entire North American continent at the same time the system would bog down. The number of times the word “wide” is used in the path, or the number associated with “widen-*n*” where *n* specifies the number of “wide’s”, determines the extent of the relays or digipeaters to be used. Widen-*n* is a newer convention, which is not supported by all programs or TNC’s. It is designed to decrease ping ponging between digipeaters. The recommended setup is wide,wide or wide3-3 for large area coverage and relay, wide or wide1-1,wide2-1 for local. The use of greater number of “wide’s” in the path is frowned upon by Bob Bruninga but may be required to have your signal seen at greater distances from your station. If you want to use the TNC for regular packet operations, you would set it up for a different protocol and set of relay instructions.

Obviously, if one were to try and type in all the possible instructions, it would be similar to hand coding HTML scripts or using the very old or original version of WordStar® word processor program where all the formatting instructions were typed in. Modern software programs do make it easier. APRS related websites listed in the APRS book published by ARRL include:

APRS/CE: www.tapr.org/~aprsce/
APRS+SA: www.tapr.org/~kh2z/aprsplus/
APRSdos: web.usna.navy.mil/~bruninga/aprs.html
APRSPoint: www.aprspoint.com/
MacAPRS: aprs.Rutgers.edu/
PocketAPRS: www.pocketaprs.com
UI-View: www.peak-systems.com
WinAPRS: aprs.Rutgers.edu
X-APRS: aprs.Rutgers.edu
XASTER: www.xastir.org/

The physical setup of an APRS station depends upon whether it will be fixed or mobile, how much information is to be viewed and if a map is to be viewed when accessing APRS data. At a minimum, a radio with either an internal or external TNC is required. Radios such as the Kenwood TM d700a have a screen that allows visualization of text. If the rig is fixed, no GPS is required. Location coordinates are entered directly into the TNC. If the rig is mobile, a GPS unit with a NMEA compatible data port is required. If you want to view stations on a map and have more information sent including Internet e-mail, a computer is required. If you are making a portable self-contained unit, a GPS with the ability to attach an external antenna and power supply is recommended. A TNC that is used by many is the Kantronics KP3+.

Often the most challenging part of setting up the station is getting or making the appropriate cable connections between the GPS, the radio, the TNC and the computer. Some information can be found at www.arrl.org or <http://www.packetradio.com/> or with your TNC. The APRS book published by ARRL is also very useful.

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For those of you with a Kenwood TH D7A HT, who find it difficult to program the radio for APRS, the following set of instructions was posted by KE7DGM on the Internet and is an example of setting up a TNC for APRS. The "Menu" convention is unique to the TH D7A HT.

Setting up the Kenwood TH-d7 for APRS

- * Set ch A for 144.390
- * Menu 1-4-1 - Packet BAND: A
- * Menu 1-4-2 - DCD Sense: "D or T BAND"
- * Menu 2-1 - Enter your callsign: KE7DGM-7 (the -7 indicates you are using the kenwood TH-D7)
- * Menu 2-2 - GPS UNIT: Enter NMEA if you are going to hook up your GPS. Enter NOT USED if you are going to type in your coordinates.
- * Menu 2-3 - Waypoint: If your GPS only allows 6 digit waypoint names, use 6digits NMEA. If it allows 9 digit waypoint names, use 9digits NMEA.
- * Menu 2-4 - My Position: This is where you enter your latitude and longitude if you don't hook up a GPS. You can enter 3 different positions POS1, POS2, POS3. Select which one will be transmitted by hitting the * key.
- * Menu 2-5 - Position Ambiguity: Off, unless you are trying to hide from someone.
- * Menu 2-6 - POS Comment: Select from the choices. I use "In Service" or "Enroute" or "Off Duty". Don't use "Emergency" unless it really is.
- * Menu 2-7 - POS Limit: Set to the max distance you want to see other stations.
- * Menu 2-8 - ICON: Choose your icon. I'm either a car or a running dude.
- * Menu 2-9 - STATUS TEXT: You can enter 3 different messages to send along with your position. I put my email address as message 1. Select the message to send with the * key.
- * Menu 2-A - Status TX: This is how often the status text is sent. 1/3 is every third transmission.
- * Menu 2-B - PACKET PATH: Mobile trackers should use WIDE1-1,WIDE2-1. This will get you through a fill-in digi and 1 hop on a main digipeater. If you are very remote, you can go WIDE1-1,WIDE2-2.
- * Menu 2-C - DATA TX: Manual means you have to hit the BCON button. PTT means you hit PTT to transmit. AUTO will transmit at your specified time.
- * Menu 2-D - TX Interval: This is how often you want to auto transmit. Moving trackers can transmit every couple of minutes if they want, but that uses up the batteries pretty fast. I never do more often than ever 10 minutes. If you are stationary, no faster than every 30 minutes. (It is nice to share the airwaves)
- * Menu 2-E - UNPROTOCOL: Only the 1st 2 characters matter, so you can do APRS or APK002 (default, indicates you are using a Kenwood)
- * Menu 2-F - BEEP: How often do you want to "beep" when receiving a position packet. All, all new , only your own, None.
- * Menu 2-G - DISPLAY AREA: 1 line or entire display. This is how much of the screen is used to display incoming positions.
- * Menu 2-H - mile/km: You can display distances in Miles or Km.
- * Menu 2-I - TEMPERATURE: Do you want F or C.
- * Menu 2-J - AUTO REPLY: Off. (on just drains battery and wastes airspace)
- * Menu 2-K - REPLY MSG: Doesn't matter, you have reply off.
- * Menu 2-L - MSG GROUP: the factory default works fine: ALL,QST,CQ,KWD
- * Menu 2-M - Data Band: A
- * Menu 2-N - Packet Speed: 1200bps
- * Menu 2-0 - Time Zone: UTC minus 5 hours (depending on where you live)
- * Menu 2-P - TX Delay: The default 500ms is too slow. 300ms works well.
- * Now exit the menus by hitting menu
- * Turn on the TNC by hitting the TNC button once.

If you get tired of hearing the incoming data packets, you can either:

1. Set the balance all the way to ch B.
2. Turn CTCSS on (F-3) and set the CTCSS FREQ to 100Hz (F-4). Since digipeaters don't pass along CTCSS tones, your HT won't open squelch, but it will still get the packet. But, if another Ham is within simplex range, you will hear their data packet and can try to call them on the simplex freqs.

The above is just an overview, but I hope it helps you understand more about APRS.

73
Leo
KG4PWC



Skywarn

Greetings everyone,

I hope everyone is having a good summer, It has been a hot one, with the temperatures that we had a week ago soaring into the triple digits with heat indices just as hot. I hope everyone kept cool in the hot temps and hydrated as well.

Well this is my first newsletter article since coming back to you as the South Hampton Roads Skywarn coordinator. I will do the best I can as before to keep our SKYWARN program going.

Ruth is no longer able to take care of the program and she has done an outstanding job at keeping things going. I owe her in helping me with the program last year. Thank you Ruth for all that you have done to help me. I am still working on attending TCC here in Chesapeake for Meteorology. This semester I will be taking another English class.

Speaking of Meteorology I have purchased two books one is called the weather forecasting Handbook and the other one is the Weather Map Handbook. Both seem to be really good books.

These I purchased from the Skywarn store at www.anythingweather.com they are authored by Tim Vasquez whom is a Meteorologist and also teaches Meteorology.

I have also purchased a piece of software that is called Storm Predator. This software is personal radar on my desktop and with it I can track storm cells, and analyze the intensity, how much rain it will have with it and if it has any hail and the size of the hail stones. The time it will be at a certain place etc.. I can also send email and pager messages and pictures with this program which could come in very handy.

Okay enough about that, there is an email list hosted by Yahoogroups.com that has been set up by Keith/KG4ZXX and Chuck Ripple called shrskywarn- South Hampton Roads Skywarn.

This group is for activations of the skywarn Net. Keith is owner of the group and I am the moderator. I also post severe weather information from the Wakefield NWS office. I have posted both of the spotters guide books, the participants manual and the summer activation script in the files section of the group. If you would be interested in joining this group please let Keith or I know and we would be glad to add you to the list.

Also, skywarn net is also in need of those individuals who would be interested and willing to activate a net during an actual storm. At times I may not be able to do that myself and Skywarn is in need of others who would be willing to do such a thing.

If you are interested please let me know so that I can add you to the list, and if you join the skywarn email list there is a database list to sign up there too. Click on the database section of the list.

I am hoping to get a Skywarn training class up and going soon, Hopefully sometimes in late September or early October. So keep a look out at the skywarn page at the NWS office web site for more information. I would like to make the Skywarn program even better than it is now. Both Keith and I would like to make our skywarn program the best it can be. We are going to need your help, I welcome input so please let me know.

Well I guess that is all for now, thanks for reading.

73
Dee Dee/KI4DNN
South Hampton Roads
Skywarn Coordinator

SkyWarn Net Control



September

- 1 - Keith KG4ZXX
- 8 - Joe KG4PWB
- 15 - Rich N5RAG
- 22 - Dee Dee KI4DNN
- 29 - Leo KG4PWC

Virginia Beach Hamfest

Electronic Flea Market &
ARRL Roanoke Division Convention



SEPTEMBER 16 & 17
2006

Virginia Wesleyan College
1584 Wesleyan Drive
Virginia Beach, VA 23462



Dealer Load-in

Friday 5:00 P.M. till 10:00 P.M. & Saturday 7:00 A.M. till 9:00 A.M.

Show open to the public from 9:00 A.M. till 5:00 P.M. Sat and till 3:00 P.M. Sun

Directions: I-64 to Exit 282 (US 13) North (Northampton Blvd) to the first traffic signal, turn right onto Wesleyan Drive. Go approximately ¾ mile and turn right into the Virginia Wesleyan Campus. The Guard at the Gate will direct you to the Hamfest location.

Dealers please contact:

Lewis Steingold, W4BLO
1008 Crabbers Cove Lane
Virginia Beach, VA 23452
Email: w4blo@arrl.net

Please visit our web page at:

<http://www.vahamfest.com>

Email: Hamfest@exis.net

Fax: 757-486-0757

Business Name: _____ Fax _____
Contact: _____ Tel: _____
Address: _____
City: _____ ST: _____ Zip _____
Email: _____

_____ Tables @ \$25.00 each (while they last) \$ _____
_____ Tailgate, single space @ \$15.00 each \$ _____
_____ Tickets \$5.00 Each in advance, \$6.00 each at the door \$ _____
Total Enclosed \$ _____

MAKE CHECK or MONEY ORDER PAYABLE TO: TRCI - SASE REQUIRED
EVERYONE MUST HAVE A TICKET

The Spectrum

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Amateur Radio Service (CARS)

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CARS : Repeaters

146.610 MHz (PL 100.0)
146.820 (PL 162.2) MHz
444.000 MHz

W4CAR Trustee: Bill Runyon WF4R

CARS OFFICERS & CHAIRPERSONS

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