The Repeater

-/ ..../ ./ --/ /.--/ /.-/ /./.-//

Jackson, GA

WX4BCA   147.285 + (131.8)

Amateur Radio Club of Butts County

USA

Have you ever <u>wondered</u>??   by Ken *'yeah, I do it ALL the time'* Wallis, KM4HOS

Have y'all ever wunder'd what us Ham Radio folks (not to mention <u>EVERYBODY</u> else) down here in lil' ol' Butts County might do if we were drivin' thru town and heard one of Butts Co's 'finest' drivin' around in his 'black & white' with his 'bullhorns' blareing 'Go home immediately!! turn on the TV/radio and listen to the Emerg Alert System, the Coronavirus has ARRIVED', <u>and</u> it WASN'T a Ga DPH 'drill'?? or maybe heard on the Wx radio or WJGA, 92.1; that an EF-3 had just touch'd down at the State Prison down by I-75, exit 201, and was makin' a 45 mph bee-line twds Jackson then on to Jackson Lake (just before Don got knock'd off the air and all you heard wuz 'static'), <u>and</u> it WASN'T Skywarn Recognition Day?? Well... we're jez about to find out.

On Thurs, Mar 5 we WON'T have the local 'posse' out w/ bullhorns blareing, BUT our county Dept of Public Health, EMA (incl ARES), Fire, Law Enforcement, and many others are gonna practice <u>HOW</u> our Health Dept is gonna <u>receive</u> medicines/drugs *(M&M's I hope)* transported fm outside Butts Co, then '<u>dispense</u>' these meds (in an ORDERLY fashion, while keepin' complicated records, and their SANITY) to the 25,000 folks who live/work here. Haven't done this in 5+ yrs, so it's gonna be an 'education' for EVERYBODY involved, which is EXACTLY **<u>why</u>** we're doin' this exercise.

On Friday, Mar 13 the same folks/organizations listed above will be supporting the Butts Co School System in their **F**ull **S**cale **Ex**ercise (FSX) involving a Tornado like I described above. They're gonna spice this one up w/ a loss of cel towers and internet as well, so... for us Ham Radio types, STBY to see it **<u>git REAL</u>**, real quick. This 'drill' is gonna be another 'education', for ALL of us involved, Emerg Mgnt and citizens, really timely with heavy weather season fast approaching.

Have y'all ever 'wondered' HOW you'll <u>FIND OUT</u> what's happening? WHAT you need to <u>DO</u> first? WHERE you need <u>GO</u> first? Gotta secondary <u>route</u>, a 3rd? WHO to <u>CONTACT</u> first? Do you HAVE what you <u>NEED</u> (for now AND later)?? Then AFTER you've taken care of the above priorities that deal w/ the <u>family, home, pets, etc.</u> - you can THEN, ask yosef if you're gonna be able to help out with your radio(s)? and go thru the above list <u>again</u> thinkin' fm a radio operators perspective. Think about it.

March 2020

Vol 8, No 3

Amateur Radio Club of Butts County

March 2, 2020

Minutes Respectfully Submitted by Nancy Phillips on behalf of Darlene Ragon, Secretary ARCBC

Meeting Held at Butts County Fairgrounds - Jackson, Georgia

Meeting Called to Order by Elaine Stachoviak at 1900   Meeting Concluded at 2040

Attendance: Elaine Stachowiak, Nancy Phillips, John Lipscomb, Hunter Barnell, Mark Clark, Dan Darsey, Buzz Kutcher, Melvin Mosier, Dana Persells, Ken Wallis, Glenn Wyatt, and Mark Baker who rejoined.

Membership: Nancy - Officially, with dues paid so far, 17.

ARES Connect: Buzz gave details on the many reasons we need to be putting our hours into ARESConnect. Among other reasons, noting the hours we put in helps Amateur Radio work across the US be a bona fide part of Emergency Services.

NET reports: Ken - Zone work went great last weekend. One more zone to go on Mar 28th. Melvin & Scout will take the helm for March's Tues nets.

Repeater: Mike - (Buzz) Construction at SGH knocked one of the repeaters off because it had to be moved.

PIO: Buzz - WJGA continues with announcements. JPA paper has our info online, if not printed.

BB&BGF: Elaine - **Blue Bird & & Blue Grass Festival** will be held Sat, April 18th. She requested an additional 'Tech Sat' for April 4th to make plans for the Fox Hunt. Bring HTs and the measuring tape antennas made last year.

VE Session: Dan - Next VE session will be at FS7 on Sat, March 21st, 0900.

Hospital Report: Dan: SGH was able to connect to 3 of the 4 nets. Construction in the radio room rendered one of the connections unavailable for the moment.

Treasurer's report: John - Repeater: $1949.11. General: $1503.33. Total: $3452.44.

Skywarn: Elaine - March and April still provide us with poor WX conditions. Keep monitoring Skywarn reports.

Old Business:
Nancy - Jackson 5K coming up May 9th. Montez requests t-shirt sizes soon. Route will be the same.
John - His club survey reports will be listed in the March NL and he'd like time to address the results next month.
Buzz - Stark Elem Sch Tornado exercise will be 3/13 at 0800. Mostly HTs with a possible go-kit at Battle Bldg.

New Business:

Field Day 2020: No FD Capt yet. Ken is Digital Capt. Elaine is 40M Capt. Jeff may be able to be 20M Capt. Probably no CW station this year. GOTA - get flyers out. Safety - Dan will let us know asa he can. Picnic - Elaine is talking with a caterer. Nancy - Pavilion has been secured. Mark Baker, Nancy, & Elaine to meet Tues at Jackson Library to ask about getting the window for our Amateur Radio display during Amateur Radio Week. Technical - Mike not in attendance to ask. Elaine said we need to decide what class we'll operate in for this year.

PROGRAM: Michelle Burnham - Part II on Henry Co Library - Michelle not in attendance at meeting tonight.

Raffle: Raffle brought in $32 tonight.

Meeting was adjourned at 2040.

AUTOMATED PACKET REPORTING SYSTEM (APRS)

_ Jeff Phillips KN4FRG

There are a multitude of things a HAM operator can delve into ranging from digital communications like DMR and D-STAR to talking to the world through HF. Our hobby offers hundreds of variations that someone might find interesting and there are several that I thoroughly enjoy. Another little tidbit that is a useful addition to our hobby, typically used as a tracking system, is the Automated Packet Reporting System (APRS).

APRS is a service providing digital real time communications using amateur radio frequencies used to share tactical information and messages. The most common activity in APRS is to plot the location of moving objects using GPS information, but APRS can also be used for short messaging, weather station telemetry, announcements, and displaying objects on a map. The power of APRS is its ability to geocode objects and display that information in a meaningful way using mapping technology. So, it's an excellent technology to use for tracking assets: like checkpoints or runners in a marathon, or storm spotters for a SKYWARN activation. As a licensed amateur radio operator in the USA, you can take advantage of the APRS network to keep track of your car, boat, plane, weather balloon, or other moving object – your own lojack. You can also use the APRS network to look at weather data from the thousands of amateur weather stations that are out there.

While APRS can be used to keyboard back and forth much like instant messenger, it's most popular use is showing the position of moving objects. A good way to see an example is to search APRS monitoring on your favorite search engine via the internet. There are several sites to record/see other APRS stations in your local area. See map.

Well, APRS has a history. The father and creator of APRS is Bob Bruninga, WB4APR. His created object positioning systems in the 1980's developed into an unconnected object mapping system in the early 90's. GPS technology became the norm and was available to the consumer market. By the mid 90's, we see a somewhat developed robust APRS framework – about a decade for it to formulate and mature. Then, in the early 2000's, the powers that be designated a dedicated APRS VHF frequency (144.390). A full-time internet gateway developed, and digipeater, and path protocols formalized. At this point, radio manufacturers began integrating the technology into their products and APRS was now primetime.

APRS works by transmitting unconnected packets containing a callsign, path, location, and other information. APRS is built on packet radio technology, so, the transmissions are in AX.25 format at 1200 baud. To operate APRS, the operator requires a device called a TNC

Available APRS, WX, repeaters, etc.
Stations in our Local Area via Google APRS

The NanoVNA – A Review
_ Mark Clark NI2Y

Recently there has been increased interest on the part of HAMs for the NanoVNA Network Analyzer. K3GWK first made me aware of the device when he shared a presentation from his former HAM club in York, PA.

The capabilities of this tiny device from China are many: Vector Network Analyzer 10KHz – 900kHz (some up to 1.5GMHz) HF VHF UHF Antenna Analyzer Measuring S Parameters, Voltage Standing Wave Ratio, Phase, Delay, Smith Chart.

The device fills a niche and a need in the world of HAM for a low-cost instrument to analyze antennas and cables. There are already plenty of TDR (Time-Domain Reflectometer) and Vector Analyzers on the market, but they come with high prices.

Although the NanoVNA has many test applications I would suspect that the average amateur radio hobbyist would pick and choose those most useful to one's own shack needs. Antenna properties and cable integrity are two of the more commonly used functions.

Currently there are many versions and models sold online and there are improvements along the way. It is worthwhile to do the homework before one chooses and purchases a device. The technology is rapidly evolving and still undercuts the high price options.

On the market there exist original versions of the NanoVNA, as well as the newer Model H. In addition, there is now a version with a larger 4-inch screen that has recently surfaced. Most of the models are with the nearly 3-inch diagonal screen. For the mature among us that means a good bit of small alphanumeric characters to read.

Fortunately, there are some choices in PC interface software that improve readability and use of the capabilities of the NanoVNA. I will mention some of these a bit further into this article.

Cost is a concern to us HAMs and there is a wide range. The original modes are almost all under 50 dollars. Even the Model H has dropped in price now that the 4-inch screen version is out. Generally, they are in the 40-60-dollar range. So far, the 4-inch screen model seems to be in the 100-130-dollar range, but no doubt there are ones out there for less. The price spread between sellers on Amazon, eBay and Alibaba is amazing. Some vendors are selling the instruments for much more that the average price and with no additional features to justify the price.

Recently I purchased the 2.7-inch screen H version. Considering the new 4-inch model and the images of the screen that I have seen, this upgrade would be worth the extra money in my estimation.

There are pros and cons to the NanoVNA. The pros seem to lead. It is compact, portable, rechargeable via the USB-C cable for the PC interface. The touchscreen is in color. Four colors are available for the graph traces. While it does not feel field rugged, some of the latest models feature aluminum or ABS cases with more protection inside. Firmware update sites are available. There are a few ways to perform an update. Currently most are hex files and require a program such as DfuFileManager (a Windows executable program) to make the update talk "Python" to the device to complete the update.

Most of the time I think the firmware already on the device will serve most purposes well. Selection of firmware updates can be tricky, and it is important to be aware of the version and device that is on hand before taking the leap. Similarly, amongst the PC interfaces that exist, some perform a few functions better than others. Generally, they are all easier to view and use, than the tiny screen on the NanoVNA. When it comes to the NanoVNA the options range from basic antenna and cable measurement such as TDR and SWR up to full on into Smith charts, reflectance, reactance and so on. Therefore, if one is an early adapter and updater by nature, then knowledge of how to flash firmware, Python, and Windows 10 will serve them well.

The touchscreen is a useful feature. Many units come with a triangular plastic "guitar pick" which serves as a stylus. A small stylus works best, and most smart phone and tablet stylus options still have a rather large footprint. An inexpensive and clever stylus can be made with a disposable mechanic pencil with the lead removed. A round headed sewing pin can be inserted into the end and it makes a more precise stylus to use. Please see the photo of the stylus I use.

I have learned much from just exploring my NanoVNA. Calibration is very important and simple. It is essential for accurate readings. The device comes with a set of open, short and 50 Ohm caps to carry out the three-step calibration procedure. Please note that the terminals are SMA male type. Adapters are required to convert the NanoVNA terminals to S0-239 coax connectors.

In conclusion, the NanoVNA can be a great addition to any HAM's toolbox if antenna and cable testing are needed.

Products:

or terminal node controller (hardware or software) to take digital data and turn it into audio tones that an FM transceiver can transmit. An APRS packet transmits without the expectation that it will be received by another station. HAMs in the past and present would use their TNC to connect to another station, much like a computer and modem would connect to another computer over the phone lines. So, with any number of unconnected packets of APRS any number of receiving stations can potentially pick up the message and retransmit or digipeat/resend it. This has the potential of conflict and these retransmitted packets can collide over the air, so a method of filtering and packet deprecation built into the digipeater firmware eliminates duplicate packets. The way the system controls an APRS packet's distance is by the path information portion of the data packet. There are numerous ways to get started using APRS.

The easiest way to get started with APRS is simply to use your cellphone. There is a program called APRSdroid available via the Google Play Store or via iPhone. The phone version connects either through the cell tower system or via wireless when using at your home station. It does require a small fee ($4.99), but once downloaded and with a few settings, you are off and running transmitting your location to other users or anyone with access to the various mapping programs like Google APRS, APRS Direct, and others. I tell my wife, Nancy, K4NEP, she can always track my location when I am driving from Missouri to Georgia. As a note, when using the app, when

away from a wireless connection, it will use a small bit of your data from your phone plan.

APRSdroid map screen

200302 Net Mgr Report

Buzz, K3GWK, held **4** ARCoBC Trng Nets in February, and we _averaged_ **9+** voice chk-in's, **4.5** on digital, and a solid **8** on WL which is even BETTER than January's GREAT showing.

Melvin, KK4QJR, and Scout will be our Master of Ceremonies for March each week with myself (or any others who'd like to volunteer) handling the Digital sessions.

We still need NCS volunteers for the weekly Trng net each month and still need to cover April and on thru the year. If anybody wants to volunteer as a Net Controller, pls lemme know. The 'Preamble' (script) is posted on the groups.io 'files' pages and I'll be more than happy to send you my macros for FLDigi and show you how to use 'em. Lemme know if yer interested.

March is gonna be a BUSY month for the BC ARES krew, so if you are interested in supporting either the **Sylvan Grove** Hosp, BC **Health Dept**, our **911 Ctr,** or **ol' Yeller** as an ARES operator please let our NEW EC, David Burnham, AK4EM, or one of our AEC's know. **FREE** training is available and also the gratitude of our Butts Co ARES team and our served communities, and remember -

" we gotta **be able** to **DO** what we **SAY** we can do."
                    and
"ya cain't **DO** wut ya DON'T practice."

Appreciate all y'alls time & effort last month in support of Butts Co HAM radio,

73,
Ken, KM4HOS
Butts Co Net Mgr

200302 BC EP Survey Report

brought to you AGAIN this month by **'Ex' Gamblers Anonymous**, yesirree, with the Dalton Hamfest goin' on I wasn't sure who, if any, would show up for February's EP Survey other than Dan and Elaine, but I gambled AGAIN and set up the clipbds & marked the maps for an NCS + **5** 'mobile' operators, and WON **AGAIN!** Sho nuf, we had people comin' outta da woodwork, I'm gonna chg the name of our sponsor to **'Gamblerz-R-Us'**. No doubt about it, I done fell off da wagon fer shoowa.

We had Elaine (KW4AQ) & Melvin (KK4QJR) at the 911 Ctr, and Dan (W4DED) roamin' da roads in 'Big Red', which I'd planned on, BUT then Jeff (KN4FRG) & Nancy (K4NEP) show'd up, and THEN Anthony (N4TZY) (alias 'Wolfman Jack') came strollin' into the Lunch Box wonderin' wut wuz fer breakfast. Things were lookin' up!!

I'd hoped we'd be able to finish the Northern half of **Zone 4**, PLUS complete ALL of **Zone 3** this time out, leavin' us w/ just **1** more 'Saturday Survey' in March to do **Zone 2** and be **FINISHED!!** Needless to say 'MISSION ACCOMPLISHED!!' We're NOW down to **1** more 'Saturday Survey'.

We'll need another good turnout (**6+**) this month get thru **Zone 2** tho. It's not the biggest or farthest, but we need to navigate around the Tussahaw Branch of Jackson Lake into 'the Peninsula' between the Tussahaw and South River Branches of the Lake, with no faster 'thru' roads anywhere. Gonna be slow & time consuming and would be REAL nice to add a 'stationary' Alternate NCS at **Fire Station #6** or **#3** plus the 3 'mobiles'. **Zone 2** runs NE outta Jackson roughly between GA36 and Stark/Jackson Lake Inn Roads all the way to the Lake.

Unless we have any objections, it looks like we'll do the Survey on **Sat, 28 March** this month. We'll talk about it more at the March mtg on the 1st.

until our next Adventure into WILD Butts Co,
Ken, KM4HOS
ARCoBC Recreational Adventure chairman

200302 BCHD Report

We got chk'd into **3** outta **4** GA HD Nets last month (construc at SGH), many thx to all our RT mbrs and the BCHD staff for makin' that happen.

For the BCHD <u>and **Sylvan Grove**</u> RT's, we have the Butts Co DPH PODx on **Thurs, 5 Mar**. We'll be testing the Jackson DPH office's ability to receive (fm outside sources) Medical Countermeasures (medicines/drugs) and 'dispense' these needed drugs to the WHOLE county population. Only a small part of the county will participate in this 'drill', but it's still gonna be a large undertaking w/ the City of Jackson, JPD, BC Sheriff's Office, Fire/EMS, Westbury Nursing Home, and others taking part. There's a <u>possibility</u> that we may need to use the HF resources at K4SGH to pass msg traffic to the GA DPH District 4 Op Ctr in LaGrange, We'll let you know if, when, where you're needed.

There's also a <u>possibility</u> another <u>multi-district</u> Health Dept Exercise on **Tues, 24 Mar** and **IF** it materializes we'll probably need the K4SGH station for that too. I'll pass the word as I get it.

If you're D-Star equipped, <u>ANY</u> of you in the ARCoBC can chk-in fm home or your mobile station. Just tell 'em you're '<u>off site</u>' and representing the Butts Co Health Dept in Jackson, GA, <u>District 4</u>. If you need help finding the D-star repeaterz we use, gimme a holler and I'll give you a list or <u>the RT syst. file</u> we use in our K4SGH or KW4BHD radios.

ALL the BCHD RT operators should make sure they have 'up to date' FLDigi/FL Msg, <u>and</u> WinLink Express (w/ UZ7HO's 'Sound Modem' program) on their laptops so we're able to tx/rx using '<u>digital</u>' modes if the Health Dept staff needs us to. The **weekly** <u>GA DPH Net</u> chk-ins <u>DON'T</u> need a laptop, it's just a D-Star <u>voice</u> chk-in.

Thx fer yer support…
Ken, KM4HOS,
yer friendly, neighborhood HD rep

K4SGH - Sylvan Grove Hospital Net

K4SGH was called into operation at 1400L on Sun, Mar 2nd. Hospital station is undergoing construction and operations were made around construction materials. Operators present were Nancy K4NEP, Ken KM4HOS, and Glenn KK4GNO.

DStar check-in made via W4DOC. DStar was not able via W4AMI. A 213 was sent. Several attempts made before Winmor was completed on 3.591 on WX4PCA-10, USB, 70w. HF check-in was made via 3.925, LSB, 70w.

K4SGH station was secured at 1545L.

February's program -

Melvin KK4QJR gave a demonstration on

Measuring Electricity with a Multimeter

Melvin used a Fluke 83 Multimeter, a shunt set to a value of 1/1000 Ohm (0.001 Ohm), and an 18 amp/hour battery. He demonstrated how to take a measurement of the amount of current being used by a 2-meter transceiver, and determine the number of hours he could safely use his battery, making the calculation so as not to run the battery below a 50% safe level of its capacity.

With the radio set to medium power, the radio produced 6 amps of current. If we divide 0.006 V by 0.001 Ohms, we get 6 amps of current. If we're using an 18 amp/hour battery, and take it no lower than 50% capacity, then 6 amps into 18 amp/hours gives us 3 hours, and 50% of that gives us roughly 1.5 hours of safe battery usage.

Is your ARRL membership up-to-date?

This is important for our club affiliation with ARRL.

Please update and inform the membership chairman.

NETS

SUNDAY:

Metro ARES FM Net - 1st Sunday ONLY at 1600L,
WA4ASI repeater, Covington, 146.925 -, 88.5 PL
KK4GQ repeater, Fayetteville, 145.210 -, 131.8 PL
KC4AQS repeater, Paulding Co, 145.805 +, 100.0 PL

GA ARES/ARCBC WL Express Net - Send an ICS-213
(or   regular typed msg, if unable 213) to KX4MAT
and WX4BCA by 1800L. Please use a Winlink RF
gateway; Winmor packet, etc, if capable; other-
wise, use Telnet.

GA ARES Digital Nets - 2100Z [1600 EST winter/1700
EDT summer] 3.583 MHz USB.

 - **GA ARES 'Traffic' Net** - **EVERY** mo, FLDigi, MT-63 1KS,
centered 2K MHz. Called by GA ARES districts, send
a 'chk-in' msg w/ 'I have traffic' when your district
is called, wait til CFM'd, then ICS-213 to KX4MAT
NCS.

 - **GA ARES 'check-in' Net** - **EVEN** mos, FLDigi, BPSK125,
centered 1000Hz, justa 'text' check-in only and
runs concurrently with the 'Traffic' Net.

 - **GA ARES D-RATS Net** - 2130Z [1630 EST/1730 EDT].
ODD months, port: gaares.ratflector.com, use
'chat' to ck-in; also under 'messages', send ICS-213,
if able; runs concurrently with 'Traffic' net.

GA Section HF Net - 2200Z [1700 EST/1800 EDT],
3.975 MHz LSB, voice, by callsign prefix.

TUESDAY:

Butts County Training Net - 1930L, WX4BCA repeat-
er, 147.285 MHz, + offset, 131.8 PL, begins with
voice check-ins, followed by NBEMS Digital Net.
WL Express msgs accepted. If WL was NOT sent the
previous Sunday, just send to WX4BCA with name,
callsign, location, also if using aux power.

*** For other training opportunities, see the ARCBC
Group.io website, and/or the GA ARES website for
other Nets w/ days, times, frequencies, protocols,
etc, for your training convenience.***

NANOVNA continued from page 5

NanoVNA models: Original, H, H with 4-inch screen

<u>Sellers</u>: Gigaparts, Amazon, eBay, Alibaba

Free returns are worth consideration

<u>PC software</u>: 1) Original software available at NanoVNA.com

> 2) NanoSaver can be found at:

https://github.com/mihtjel/nanovna-saver/releases/latest

This software includes a very helpful Calibration Assistant and a useful TDR function for the measurement cable length.

> 3) Software that runs on the web can be found at https://cho45.stfuawsc.com/NanoVNA/.

It offers the ability to capture a screenshot of the NanoVNA's actual screen in real time.

The online interface requires a platform to be enabled in another tab of the browser known as http://flags/#enable-experimental-web-platform-features

<u>More information</u>:

Of course, there is a Groups.io group that contains a wealth of information:
nanousers@groups.io

Besides the forum, there are two very useful information sources in this group: wiki and files. I highly recommend a visit to this site for more information.

Many reviews and how-to videos are on YouTube and can guide a new user.

Homebrew stylus

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APRS continued from page 5

Location list coinciding with APRSdroid map

The APRSdroid features are:
* See what is going on on APRS with the Hub View or on the map
* One-time or periodic position reporting to APRS
* APRS Messaging support
* Get detailed information about a station
* Follow the movement of a station on the map
* Support for GPS and network location
* Bi-directional APRS-IS support via TCP and AFSK
* Unidirectional position reporting via UDP and HTTP
* Bluetooth TNC support (beta quality)
* Status Bar notification when running and for incoming messages
* AFSK decoding via microphone
* Smart beaconing

Some folks will use an old cellphone with GPS and wireless, download the app, and with a little investment have an operating APRS station at home. Even though it is through the internet or via a cell tower not through the traditional RF we amateurs love.

> Upfront, to use an RF version of APRS from your home station or while mobile, there must be an APRS station or digirepeater close to your location. The digipeater listens for data chirps that have been encoded with instructions to retransmit them and then retransmits what it hears when appropriate. This allows users with mobile or portable APRS stations to cover a wider geographic area. This is how a network of radios can send data back and forth for long distances without needing an internet connection. A digipeater can be a standalone dedicated device or it can be a feature incorporated into some of the more
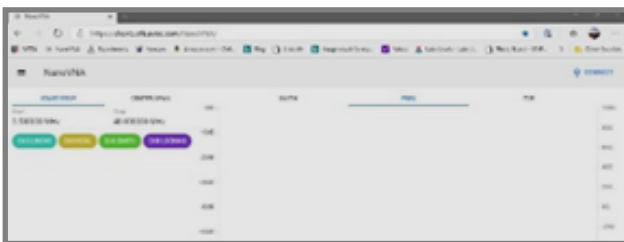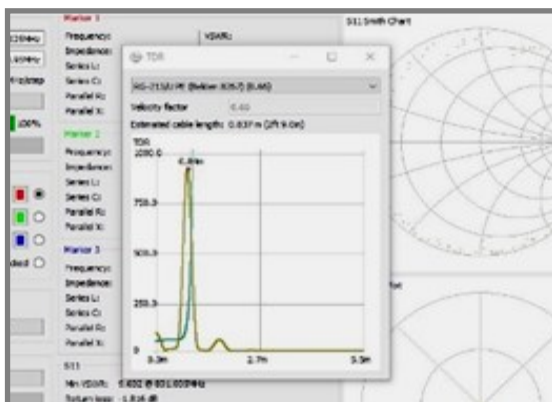
NANOVNA continued from page 9
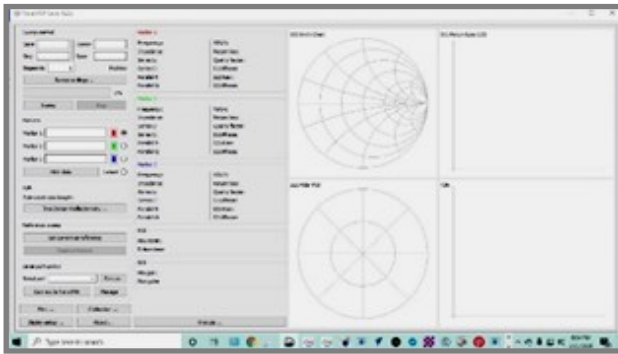
Original NanoVNA interface
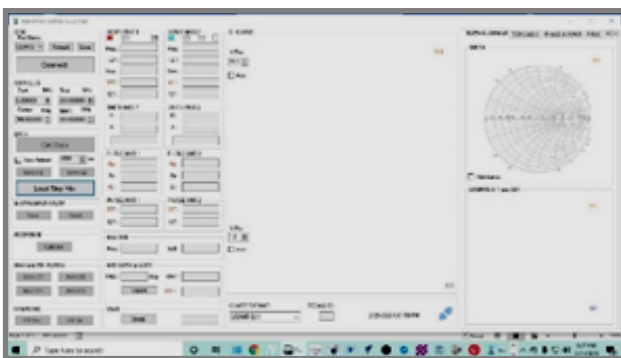
NanoSaver

Web based interface

TDR measurement for a short coax
jumper in my shack. It is accurate
to the inch.

APRS continued from page 9

high-end VHF amateur radios. Most vendors do integrate APRS into handhelds and mobile radios. An example of a mobile system is the Yaesu FTM-400XDR and an example of an HT is the Kenwood TH D74a.


Kenwood TH-D74a   Yaesu FTM-400DR

So, how do you choose? If you want a user accessible TNC for things like Winlink packet mode or you want to setup a digipeater for special events from your car or setup a digirepeater from your home, go with the Kenwood. If you do not need to access the TNC and would prefer a color touchscreen with System Fusion, go with the Yaesu. Most of Yaesu's HTs or mobiles do not offer accessible TNCs, so, no Winlink packet mode. There are several other radios available and they range from around $600 and below.

Another means to connect to APRS via RF is by purchasing a TNC. There are a few out there and by using your trustworthy search engine like Google, you can find a plethora of information on available TNCs. The Microsat WX3in1 Plus 2.0 is a more modern TNC with various capabilities.
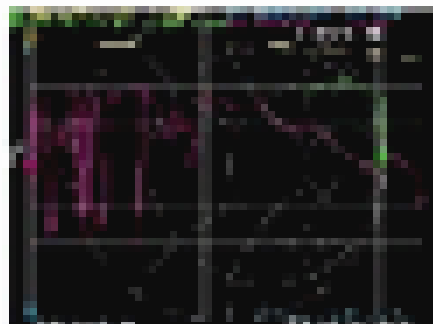
NanoVNA screen capture from the web-based PC interface

_ Mark Clark

APRS continued from page 10

Microsat WX3in1 Plus 2.0

WX3in1 Plus 2.0 allows you to generate APRS data packets with information field defined by user and send them in a specified interval. In this way, it is possible to send beacons, objects, weather and telemetry data serving as an APRS station. The main purpose of the device is receiving and sending APRS data packets via amateur radio transceiver. WX3in1 Plus 2.0 is capable of receiving an APRS packet, decoding the sender, recipient, path, and information field. Then actions are performed in accordance with the options configured by user: Packet is digipeated via the APRS network, Packet is sent to the APRS-IS server, Packet is ignored if it was corrupted. The TNC can also serve as an iGATE. An iGATE listens to the over the air traffic and injects the packets into the APRS internet stream. iGATE's can also take packets from the stream and retransmit them over the air. This has the benefit of being able to send and receive messages to just about any station heard by the internet stream. With radio and internet technology you can send short messages to just about any APRS station around the world. Also, thanks to iGATE's, you can view the local APRS traffic of just about any location. This TNC sells for under $200.

The Mobilinkd TNC3 is a more portable TNC with the ability to do APRS and normal packet duties like sending Winlink via packet. It is a Bluetooth system running via a battery. Using the supplied by the manufacturer adapter cables to fit your HT/mobile, you can easily setup an APRS station for home or mobile

use or use for the Sunday afternoon WL2K check-in via packet. The adapter cable connects the TNC to your radio for RF and the Bluetooth connects to an old cellphone or tablet for monitoring purposes.

This system runs a little less than $160 for the TNC w/cable. As a note, you must download the appropriate phone types Mobilinkd app to connect to the phone, etc.

Lastly, another small portable system is the TinyTrak.

The TinyTrak series was one of the most popular on the road. Small and purpose built, the latest TinyTrak can double as a TNC for your Winlink or any other packet needs. It is one of the cheapest digipeater solution. If you hook up to a compatible GPS, it can display the locations of other stations. This system's vendor provides the needed adapter cables to link your HT/mobile for packet use. Both the Mobilinkd and Tiny Trak can connect to a computer for advance software for use with APRS. The TinyTrak w/GPS and adapter cables costs about $160 - $180.

If this article piques your interest complete a few internet searches and gain some additional knowledge. There are many ways to start using APRS with just a little investment. The phone only option offers the cheapest solution and connects directly to an APRS server for global interpretation, but no RF. The Mobilinkd and the TinyTrack are good examples of portable systems the operator can use either at home or mobile. Most folks will just buy an APRS compatible radio, but with only 5 watts from your HT, you

APRS continued from page 11

will need to be close to a local digipeater to get you position or message into the APRS server. There are few mobile options available, but of course, will cost a few more dollars than the HT. Remember, the most common activity in APRS is to plot the location of moving objects using GPS information, but APRS can also be used for short messaging, weather station telemetry, announcements, and displaying objects on a map. Finally, most the shown TNCs will provide the operator the ability to not only track APRS, but will add a little more capability to your station allow- ing you the ability to send traf- fic in emergency situations via packet radio or just for that Sunday afternoon GA Winlink net.   _JP

How APRS Works
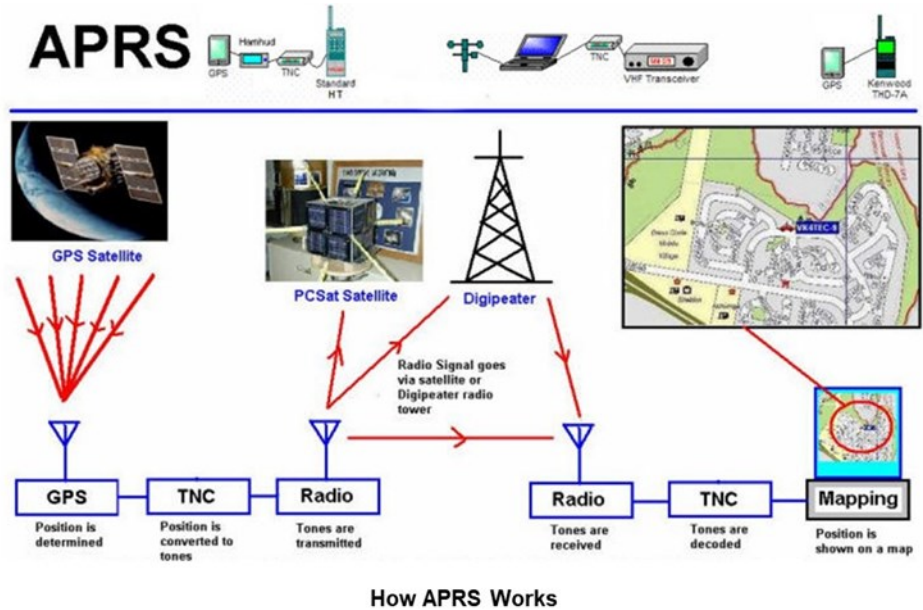
NOTES FROM THE BACKACRE
_ Buzz Kutcher, K3GWK

Georgia ARES Report
_ David Burnham AK4EM

FEB 2020 –
- Monthly training was a demonstration of DC current metering and the use of shunts by Mel Mosier (KK4QJR).
- David Burnham (AK4EM) was appointed the Butts County ARES Emergency Coordina- tor.
- On 06FEB a SKYWARN Net was initiated and operated for five hours, seven BC ARES members participated: AK4EM, K3GWK, K4NEP, KJ4TVO, KM4HOS, KW4AQ and NI2Y.
- Four members attended a SKYWARN class hosted by the Henry County EMA.
- The Butts County School System has invited ARES to participate in a severe weather ex- ercise at a county elementary school. AK4EM, K3GWK, K4NEP, KJ4TVO, KK4QJR, KM4HOS, KW4AQ and NI2Y participated in the TTX.

- KK4GNO, KM4HOS and W4DED operated the Sylvan Grove Hospital station during the monthly hospital net.
- BC ARES continues to support the weekly DPH DStar net: KM4HOS, NI2Y, K3GWK and KA8LAD operated the station for the February nets.
- The Communications Zone Mapping Project continues, KM4HOS is the project coordina- tor.
- There were four voice nets, four NBEMS training sessions and four WL2K tests (103.5 Hours).
- ARES Connect hours reported 214.7 (Value $5,400.00) – K3GWK, AEC

That's about it from Jenkinsburg Station. Thanks for all you do for Amateur Radio in and around Butts County. "When all else fails, ham radio works."

73, K3GWK <AR>

The following 2 pages are a compilation of the Club survey headed by John Lipscomb.

Amateur Radio Club of Butts County January 2020 Results

Legend:
- Yes
- No
- Mobile
- Shack
- Never
- Rarely
- Sometimes
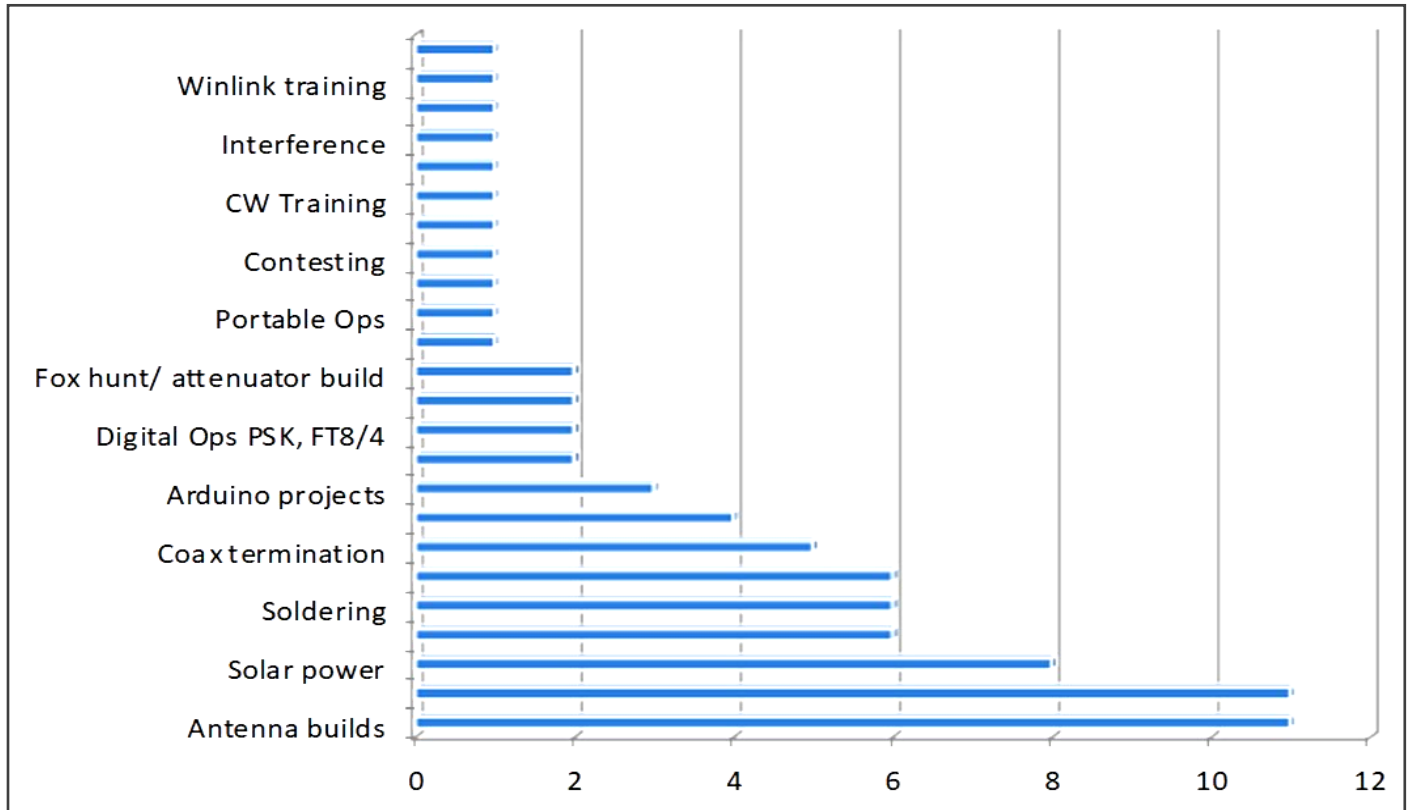- Often
- Telnet
- Packet
- Winmor
- VARA
- Email
- Groups IO
- Facebook
- Web Page

Survey questions:
- Do you prefer club info via email, groups IO, Facebook or Web page
- Club Webpage. Do you use this never, rarely, sometimes or often
- Groups IO. Do you use this never, rarely, sometimes or often
- Facebook. Do you use this never, rarely, sometimes or often
- Do you have an interest in participating in a weekly NVIS net
- Do you have or have you participated in a NVIS antenna build
- Are you familiar with or do you use DMR
- Are you familiar with or do you use System Fusion
- Are you familiar with or do you use VARA
- If using Winlink, how do you connect (circle all that apply) Telnet, Packet,...
- Are you familiar with or do you use Winlink
- Are you familiar with or do you use Fldigi
- Are you familiar with or do you use Echolink
- Do you have Dstar PC capability
- Do you have Dstar HT capability
- Do you have Dstar mobile capability
- Are you able to use the 440 repeater from your home QTH
- Are you able to use the 2m repeater from your home QTH
- HF capability circle all that apply
- Do you have mobile or HT 220 capability
- VHF/UHF HT capability
- VHF/UHF mobile capability
- ARRL Member

Additional projects/presentations/training

What events should the club participate in? Fairs, festivals, 5k's etc …

Henry County geranium festival, Henry County Night out.

All the above.

5k's.

Bluebird & Blue Grass, Football, 5k's, Christmas Parade, 4th of July fire works.

Local races are ok, we don't have much results from fairs.

Fairs, festival, races (participate).

Everything we can.

Fairs, Festivals, 5k's for practice and visibility.

Butts County fair and fall festival, Jackson 5k and Jenkinsburg races, Covington Century bike race.

We should participate in any event we can get members to go to.

Bluebird & Bluegrass festival, 5k's and field day, Jackson on the Square, Jackson Fair.

All the above, any that would increase Ham Radio

awareness and of course Field Day. I would suggest participating in portable ops, i.e., POTA and a mentorship for just-licensed hams.

General Comments

Might demonstrate Echolink for newbie's.

Consider return to station 7 for meetings.

Monthly or BI-Monthly ARES meeting. Move meeting back to station 7 (internet & project tor).

Sorry, I didn't like Field Day.

Unable to use Amateur Radios at QTH due to HOA.

NVIS net great idea, but maybe as a quarterly exercise.

Relocate repeaters to a more favorable location.

Current meeting location does not provide much time to chat before or after meeting due to gate having to be locked.

We need to have drill to see who can set up a station and antenna system. Too many members rely on others for their antennas and radio equipment.

CALENDAR

MARCH 2010

7- Tornado TTX - 0900 FS7

13 - WXEX - Tornado Drill Exercise, 0830

21 - Hungry Hams - 0730 Huddle House, 16 & I-75

21 - VE Session - 0900, FS # 7, 144 Colwell Rd

24 - PODX Drill - DPH, 0830

APRIL 2020

4 - Fox Hunt - Bring HT & Tape antenna, FS7, 0900

6 - Monthly Meeting - 7 PM, Jackson FGs

"DMR Programming" - Chris Southerland

18 - Hungry Hams - 0730 Huddle House, 16 & I-75

18 - Tech Saturday - 0830, FS #7, 144 Colwell Rd

MAY 2020

4 - Monthly Meeting - 7 PM, Jackson FGs

"*Drones*" - Pete Acevedo

9 - Hungry Hams - 0730 - Huddle House , 16 & I-75

9 - VE Session - 0900, FS #7, 144 Colwell Rd

JUNE 2020

1 - Monthly Meeting - 7PM, Jackson FGs

"Field Day"

20 - Tech Saturday - 0830, FS7, 144 Colwell Rd

26-27-28 - FIELD DAY - Kersey Pavilion

JULY 2020

6 - Monthly Meeting - 7 PM, Jackson FGs

Tues Net NCS for March
Melvin KK4QJR

Tues Net NCS for April
Nancy K4NEP

CONTACT INFO

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