

# Nacogdoches Amateur Radio Club

## 2020 CLUB OFFICERS

Pres: Bill Rascher - KT5TE

Vice Pres: Steve Bartlett-WB5IDY

Sec/Treas: Army Curtis - AE5P

Visit our web site at

<https://w5nac.com/>

## MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events and having fun.



## MAY MINUTES

The May meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on May 6th. Because of the current 'Stay at Home' order, the meeting was again held as a virtual meeting using 2 meters. **President Bill KT5TE** opened the meeting at 7:00 p.m. on the club's 147.32 repeater. Eight members checked in. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

Members were encouraged to try their hands in the

many contests, even if just for a few contacts. It's wonderful practice and a great way to improve your abilities in Ham Radio.

The San Jacinto Day Special Event Station was held the weekend of April 25-26, using the special call sign K5T. Club members operated in this event from their home stations. A total of 1,022 contacts were made using SSB, CW, and FT8/FT4. All contacts were confirmed via LOTW and we are seeing a very high percentage of those contacts confirmed. We have answered approximately 50 paper QSL requests.

Field Day is scheduled for June 27-28. At this point, it appears members will have to operate their own stations from home as

either Class E or Class D. Members who do operate during Field Day are asked to inform the Club Secretary of their participation.

Army AE5P reported that he is actively working on finding another location for VE testing and hopes to be able to resume testing by the third Wednesday in June.

**Program: Army AE5P** presented some ideas on possible Field Day operation. Several different scenarios were discussed, most of which would require a change in the ARRL Field Day rules. If there are no changes to the rules, then members will have to operate from their home stations using their home callsign as either Class E or Class D.

## FROM THE PRESIDENT

### Wet 2M Summer

Summer has arrived with the month of June, so with this in mind it's time to get the truck ready for the second VHF contest. This year the truck is almost ready.

The truck has new tires and a monster 60 gallon fuel tank. The 60 gallons equals more than 1,000 miles for the unloaded truck (21mpg \* 60gal - heavy foot to keep up with N6RH). For the VHF contest that means never having to do a fuel stop the whole weekend even with heading home Saturday and back contesting Sunday. The tank was replaced because the factory 26 gallon tank meant having to do several fuel stops on trips around the state to horse contests or stock sales.

One of the last things that needs to be done is to run a second home run

pair of wires from the right hand battery to the radios. Last year the ATAS 120 would not work correctly because the Yaesu FT-859D didn't have enough power. The FT-991 would warn if it didn't have enough power to tune the ATAS 120, but the FT-857D just keeps on trying with no results. The FT-991 was sold to my brother, KG5RZT, for his observatory, and it would be best if I didn't snatch it while he was gone. So this time the wires from the battery to the radio are 10awg with no connections except the fuses about 6" from the battery. The original wire still goes to the RIGrunner 4004 USB on the RAM mount pedestal.

That USB RIGrunner has been very useful for all sorts of items, but mostly it free ups the two utility plugs in the truck for the video screen. The horse and stock trailers have cameras that help backing up and they make my XYL happy when she can watch her horse while heading down the highway. The

trailers are a full 8' wide so seeing a tailgater without a camera is impossible.

The same display is used in the tractor to watch the equipment directly behind the tractor. The windows were tinted a little too dark making it difficult to see what is going on in low light conditions directly behind the tractor. Yes, work has continued into the night, and no, the lights aren't enough.

Another item that needs to be added is the ICOM speaker since the radios are under the back seat. For 1.25m Alinco DR-235TMKIII is plugged into the trucks sound system. For the contest the 1.25m is used for the control band and truck speakers help keep the mics separate. When you're using multiple radios on the highway it is helpful to know which mic to grab and there is nothing like surround sound to get your attention. If an HT is used then it is handy to have a mike for the HT and to plug a sound out

cable into the vehicles stereo's AUX in. This is very close to hands free driving and definitely beats having to hold the HT to one's ear.

You don't want to miss this month's meeting since we'll be talking about Field Day in addition to the VHF roving contest. Boy, will it feel good to get away from the farm for a couple of days. So pay close attention to time and place. :-)

73, Bill KT5TE

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## FROM THE VP CHAIR

### Amateur Radio Operators - Public Servants?

After 36 years in private practice, I sold my business. I was fortunate enough to find some younger engineers to take over my practice, bless their little naive hearts!! I then took a job as the City Engineer (because I am crazy) and had to learn a whole new way of life as a public servant. As it turns out, all you guys and gals are now my boss. What? Dealing with the public can be a challenge. A real challenge, and it is 75% of my job. In reality, I had trained for this all my life and did not know it.

My "retirement job" got me to thinking about our amateur radio service and how our foundation as Hams is really public service. We provide communications during

disasters, training, education, testing, and general contributions to our community. It is, in fact, our main mantra through organizations like Skywarn, RACES, ARES, and the like. Our Field Day exercises and weekly nets are simply practice for times of public service during a crisis.

Do you participate? If you are not registered as a RACES/ARES participant, or contribute something to a field day exercise, or participate in weekly nets, you need to reconsider what I believe is a foundational part of our hobby. I will go as far as to say; some public service for a Ham is an obligation. "I don't have time", "I'm too busy", "I am too old or too young" are simply not valid excuses. Sure, we can only devote time and energy to some level, and participating in all things is not always possible, but you can DO SOMETHING.

Before the soapbox collapses under my growing quarantine-caused weight, I will extend my finger shaking

to public service in general. Your church has numerous jobs that could use your help. The City has tons of volunteer boards ranging from the Mayor's Council on Disabilities, to Parks, Visitors Bureau, Historic Commission, and Planning and Zoning. Hams are some of the smartest folks I know and would be welcome board members in a number of areas. Yes, I can hook you up!

The point is, Public Service opportunities abound all around you and I believe we as the radio operator community have an even greater obligation to set this example. No matter your age, health condition, or expertise, your friends and neighbors need you.

Oops, the box just collapsed. Too many Oreos ...

73, Steve WB5IDY

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## NOTES FROM OUR EC

It's June (well almost) and you know what that means, Hurricane Season 2020 is starting. I think most of us would prefer to see the baseball season get going rather than this.

The season started early this year, imagine that. It has started early for the last 6 years. Tropical Storm Arthur kicked things off 16 May with maximum sustained winds at 60 mph. Tropical Storm, now Tropical Depression Bertha, added to the festivities 25 May. Bertha had maximum sustained winds of 30 mph. Bertha's winds have lessened since land fall.

The prognosticators, forecasters, weather prophets, and shamen have looked at the charts, scanned in the data and read the bones on the hide. This is what they have come up with. Hurricane season 2020 will be above normal and I'll

let you define normal. Named storms 13-22, hurricanes 7-11 (may want to bet these numbers at the dice table) and 3-6 major storms Cat 3, 4, and 5.

We have a kink in the works this year. Yes, you guessed it COVID-19. Some of the sources in my research noted that COVID-19 and the current rules (my words) may make evacuation and sheltering awkward.

With that in mind, it could be very awkward for us to support an evacuation. We ain't a bunch of young uns anymore. We fall into 3 categories, compromised-a lot of our membership, families, and mission essential to their jobs. I'm all ears if you have some ideas.

Lastly, have you got your bug-out gear set up if you have to run? Vehicle ready, trip planned out? For those of you that might ride it out here, generator serviced batteries, etc. Keep those thoughts in mind.

Last month I asked about applications/software that you might use for tracking weather and weather radar information. Aaron, KI5FIQ, responded. He uses RadarScope on both his phone and computer. RadarScope is a paid service. He also follows the NWS weather chat and keeps tabs on a couple of TV stations to get the Baron graphics. Now are you ready for this, he uses a small Arduino hooked up to his WX radio. He has it set up, as he says, to Broadcastify across Google home. Anybody else?

There ya have it for June. Don't forget our Monday and Thursday Nets and our OTA club meeting Wed 3 June on the .32 repeater.

#### **ARES/RACES Net:**

Mondays 8:00 pm local time, 146.84, 141.3, neg offset.

#### **SKYWARN Net:**

Thursdays 8:00 pm local time. 147.32, 141.3, positive offset.

73 de John Chapman  
KC5MIB

[kc5mib@arrl.net](mailto:kc5mib@arrl.net)

## VE TESTING

Our VE testing originally scheduled for **Wednesday May 20** was cancelled due to the Wuhan virus. We are currently looking for a new location that can accommodate our testing on June 17<sup>th</sup>. I have been contacted by several individuals who want to take the exam(s) in June and will notify each of them personally by email. In addition, we will update the club website as new information becomes available.

<https://w5nac.com/about/testing/>

73 de AE5P.

email: [ae5p@arrl.net](mailto:ae5p@arrl.net)

## TWO METER CLUB NETS

Remember to join us each week for the two meter nets sponsored by NARC. Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on **THURSDAY** evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3). Please join us for one or both.

## BOOK RAFFLE

Check out the article in this newsletter on solving a puzzle. The first dues paying club member to contact me with the correct solution will win a new book on Ham Radio.

73, de AE5P

## NEXT MEETING

The next meeting will be a virtual on-air meeting **Wednesday June 3rd at 7:00 p.m.** on the 147.320 repeater (PL 141.3). All stations participating are asked to check-in giving their callsign and name when asked for. An on-air program is planned.

## SAN JACINTO DAY SPECIAL EVENT OPERATION

The weekend of April 25-26, NARC held its annual San Jacinto Day Special Event. We used the special callsign K5T and a number of club members and guests operated from their home stations. I want to thank WB5IDY, W5NRF, KI5FIQ, K5ME, N6RH, W5TV, KT5TE, KOYY, K5KRK, and AE5P for their participation.

When all the dust had settled, the group racked up 1,022 contacts using 160, 80, 40, 30, 20 and 17

meters, running SSB, CW, FT8 and FT4. Most stations ran 100 watts. At least 1 station ran more.

The final log was uploaded to LOTW on Tuesday April 28. Later that same day I received almost 400 QSL's back from LOTW. In the meantime, the paper QSL's are arriving daily in the mail box, but I'm convinced LOTW is the **ONLY** way to go.

Again, many, many thanks to the members and guests who helped with this. There is no way one person can do this alone.

Many of the stations I worked seemed very pleased at the history behind this day, and were delighted to learn a little of the history of Texas. This event is a great way to spread knowledge of Texas history, and to have a lot of fun in the process.

Just wait until next year!

73,

Army AE5P

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## UPCOMING EVENTS OF NOTE

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at <http://www.hornucopia.com/contestcal/contestcal.html>

Note that all dates shown here are local, CST dates while all contest logging uses UTC dates and times.

### CQ WW WPX, CW

May 30-31, 2020

<http://www.cqwp.com/rules.htm>

### ARRL JUNE VHF

June 13-15, 2020

<http://www.arrl.org/june-vhf>

### ARRL FIELD DAY

June 27-28, 2020

<http://www.arrl.org/field-day>

### CQ WW VHF

Jul 18-19, 2020

<http://www.ncjweb.com/NAQP-Rules.pdf>

### NAQP, CW

Aug 1, 2020

<http://www.ncjweb.com/NAQP-Rules.pdf>

### NAQP, SSB

Aug 15, 2020

<http://www.ncjweb.com/NAQP-Rules.pdf>

### ARRL ROOKIE ROUNDUP RTTY

Aug 26, 2020

<http://www.arrl.org/rookie-roundup>

### WORLD WIDE DIGI DX

Aug 29-30, 2020

<https://ww-digi.com/>

### ARRL SEPTEMBER VHF

Sept 12-13, 2020

<http://www.arrl.org/september-vhf>

### CQ WW RTTY

Sept 26-27, 2020

<http://www.cqwwrtty.com/>

### CQ WW SSB

Oct 24-25, 2020

<http://www.cqww.com/rules.htm>

### ARRL SS CW

Nov 7-9, 2020

<http://www.arrl.org/sweepstakes>

### ARRL SS SSB

Nov 21-22, 2020

<http://www.arrl.org/sweepstakes>

### CQ WW CW

Nov 28-29, 2020

<http://www.cqww.com/rules.htm>

## SOME HISTORY OF SSB

by  
Thomas Atchison W5TV

As I was looking about for a topic to put in the next NARC Newsletter I came across an article entitled 'History of Single Sideband in Amateur Radio' by James W. Nash, K4HMS/V31AW. I discovered this as a pdf file by searching for 'History of Single Sideband' and it was of interest to me so I thought I would make some remarks about the history of SSB in hopes that others would share my interest.

As far as I can tell, the story of SSB started at Bell Labs in Murry Hill, NJ.

[https://en.wikipedia.org/wiki/Bell\\_Labs#Origin\\_and\\_historical\\_locations](https://en.wikipedia.org/wiki/Bell_Labs#Origin_and_historical_locations)

It seems that the people at Bell Labs discovered almost everything that has to do with radios and communication. You may wonder, as I did, why was Bell Labs such a 'hot bed' in the development of radio communication? Well, Bell Labs was attempting to develop and improve a telephone system that always seemed to have problems and needs. For example, Bell Labs was trying to create an efficient and inexpensive long-distance telephone system. To attack the many challenges of the fledgling telephone industry a fellow named Mervin Kelly, President of Bell Labs, realized that his Labs needed to employ the smartest people possible and they needed to provide continuing education for their employees. In 1948, under the direction of Kelly, Bell Labs began offering a series of courses for its employees which was known as the Communications Development Training Program (CDT). This was informally known as 'Kelly College'. This innovation was responsible for much of the creative work that was done at Bell Labs. By the way, Bell Labs discovered that it was possible to increase the capacity of overseas telephone circuits using SSB modulation, and such circuits were in telephonic use by 1918.

In the January 1948 issue of QST, Byron Goodman, W1DX, wrote an article entitled "What is Single-Sideband Telephony?". In this article Byron discusses the history-making single-sideband suppressed-carrier (SSSC) transmissions between W6YX and WOTQK. These transmissions took place in October 1947 on the 20 meter band. In this article Goodman talks about how SSSC transmissions are used to communicate. Going back a few years, Robert M. Moore, W6DEI, published three articles in R9

magazine in 1933 and 1934 that he referred to as single-sideband suppressed-carrier transmissions. In these articles Moore referred to the techniques developed by Bell Labs in 1918.

As it turned out, another ham, J. Evans Williams, W2BFD, wrote a letter in 1948 to QST stating that Moore was a SSB pioneer in the 1930's. In fact, Williams built a 500 watt SSSC transmitter based on Moore's designs and reported that several SSSC stations had been on 20 meters in the 1930's. It seems that SSSC just didn't catch on during that time for a variety of reasons.

After World War II, techniques and circuits were developed, including the introduction of a balanced modulator which generated sidebands but no carrier in a signal. This led to the development of a sideband filter that eliminated one of the sidebands. The result was a stable transmitter that produced a signal with one sideband and no carrier i.e. SSB.

In the 1950's, most of us who were operating amateur radio stations were either on CW or AM. I was a junior in high school in 1953 and held the call W5AER. I remember the first SSB 'duck-talker' I ever heard. According to my log, it was February 6, 1954; on 75 meters and I worked W5EBM, Leonard, in New Braunfels, TX. He was using a Central Electronics 10A exciter to generate an SSB signal. He was very loud but he sounded like a duck quacking in my receiver. I had heard hams talk about these strange noises but this was the first one I had encountered. To tune him in with an AM receiver I had to turn on the variable BFO (beat frequency oscillator) and tune the tone until I could understand what he was saying. That is, I had to put the carrier back in the SSB signal at the reception point and 'slope detect' the audio. I know this sounds strange to people today but that was how we did it then.

Over a period of time amateur radio operators realized the advantages of using SSB rather than AM to communicate. Actually, SSB is a derivative of AM so this is a natural comparison. In an AM signal, half the power is used to generate the carrier which contains no information. The other half of the power is used in the two sidebands and the same information is duplicated in each of the sidebands. This means we only need one sideband to communicate audio information to a receiver. More specifically, if one is generating an AM signal using 100% modulation, half the power is used in the carrier and half the power is used in the two sidebands. If we eliminate the carrier and one of the sidebands then we are using a quarter of the power. This is a factor of 4 power gain or 6 dB. Since only one sideband is transmitted in an SSB signal, the receiver bandwidth can be reduced by half. The narrower bandwidth will reduce

the noise and interference received, therefore; it improves the signal to noise ratio by a factor of two or 3 dB. The total improvement is therefore a 9 dB gain using SSB.

There are disadvantages however. The generation of SSB signals is complex since we must remove the carrier and one of the sidebands. Also, receivers need to be very stable, the tuning needs to be precise, and we must demodulate the received signal to recover the audio. Over time, most amateur phone operators moved to SSB, however; there are still AM signals on the HF phone bands.

In the 1960's several companies produced transmitters and transceivers that could send and receive SSB signals. By the late 1960's SSB dominated the amateur phone bands. My first SSB rig was a National NCX 3 running 120 watts to a vertical antenna. That was in April of 1964 and I was 'hooked' on SSB.

If you are interested in the history of amateur radio there are several articles that I have listed below that you should read. I would like to quote from James Nash's article, *"Without single Sideband, I'm not sure amateur radio would be nearly as strong an institution as it is today. Who knows what will come next?"*

#### References:

Goodman, Byron, W1DX. "What is Single-Sideband Telephony?" QST, January 1948, pp 13-15, 126.

Moore, Robert, W6DEI, "Single Sideband Transmission," R9, September, December and January, 1933-1934.

Williams, J. Evans, W2BFD. "SSSC," letter to the editor, QST, February 1948. p. 64.

## FT8/FT4 - WHO NEEDS THEM?

By Army Curtis - AE5P

For more years than I care to confess to, I have operated RTTY and CW and have considered them as my digital modes of choice. Then along came some new ones like PSK and a whole slew of others. It became almost a joke of what's the new mode this week?

Then came WSJT and some pretty serious digital modes primarily for Moon Bounce (EME) operations. Well, I wasn't into EME, so ho, hum...

Then came WSJT with FT8. Being kind of an old guy, I rather tended to ignore this new mode. It was very easy for me to give it a try; after all I have a Flex radio.

But then I started noticing that in tuning across the bands, the FT8 frequencies on each band always seemed to have activity; even when the band was 'closed'. What's going on with that? Maybe I need to check this out a little more closely.

There has been a noticeable shift in operating culture on our Ham bands in recent years. People just don't want to get on the air and 'rag chew' like they used to. I am as guilty of that as anyone. My radio outlet became contesting where I especially enjoy CW and RTTY contests. Get on the air, call CQ or just answer other stations who are calling CQ. Send the standardized exchange for that contest, receive the same from the other station, and it's off to the next contact. Very impersonal, and very quick.

And then along comes FT8. Your computer decodes all the signals your radio hears and shows you the CQ'ing station's callsign and grid square. You also get a computer generated signal strength. If it's a station you want to work and their signal strength is good enough, double click on him and the computer does the rest. Signal strengths are exchanged and acknowledged. Contact completed. Shoot, that was pretty easy and you don't have to be fluent in CW. What a deal!!!

Oh, did I mention that FT8 is able to recover and display information from stations so weak you literally cannot hear them with your ears. Now that is really slick but in most cases isn't a major factor. There are so many stations on FT8 these days that most of your contacts will be with stations plenty strong enough that you could easily work them on CW or even SSB. But then it wouldn't be so automatic, would it?

For this new breed of operator who doesn't like to rag chew, doesn't want to put in the time to learn and master CW, and wants to keep radio operating as easy as possible, FT8 is the way to go. And there are LOTS of folks out there who fall into this category. FT8 has become incredibly popular.

So who needs it? Anyone who wants a really simple way to make a contact loves it. Anyone who is trying to see if a band is open loves it. Anyone who doesn't speak Morse Code will love it. There are probably many other reasons to like FT8 as well. In spite of my initial reservations about this new mode, I now find it definitely has a place in our quiver of modes, and has proven to be very useful in a number of different ways.

If you haven't already, give FT8 or its quicker cousin FT4 a try. I expect you will find you like it also.

## SOLVE A PUZZLE, WIN A BOOK

Our very talented Rusty Sanders, KD5GEN, has put together an Excel worksheet that produces cryptograms. The first one is below.

Jds vsgejd bxqwcybvs cu q xmgzjcbg bxq gmtasn bx yqnqtsjsnu, cgzvmwcge xnshmsgz, svstsgj wcqtsjsn, qgw dscedj qabis enbmwg, jb tsgjcbg q xsk.

The first dues paying club member who sends me the correct solution to this cryptogram will receive a brand new copy of the ARRL Antenna Compendium Volume 8.

After I receive the winning entry, I will publish the source of this particular cryptogram so all can see what it says.

Send your entry to [ae5p@arrl.net](mailto:ae5p@arrl.net).