

# Nacogdoches Amateur Radio Club

## 2019 CLUB OFFICERS

Pres: Jack York - KG5POU

Vice Pres: Bill Rascher - KT5TE

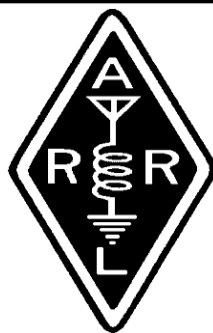
Sec/Treas: Army Curtis - AE5P

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.



## AUGUST MINUTES

The August meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on August 7th. **President Jack KG5POU** opened the meeting at 7:00 p.m. in the Lunch Room of Christ Episcopal School. Thirteen members were present. Each person present introduced them self. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

**Contests:** The NAQP CW contest on August 3 saw **AE5P** and **W5ME** participating. **W5ME**

reported 344 Q's and 116 mults. Well done!

The CQ VHF contest saw **Army AE5P**, **Ralph N6RH**, **Bill KT5TE** and **Steve WB5IDY** participating as rovers. There was some enhanced propagation noted on 6 meters during the contest on Sunday.

**Andy KE5EXX** asked if there was a MOU between NARC and DETARC. **Army AE5P** reported that there was and would try to find a copy of it for Andy.

**Army AE5P** gave a report stressing that each Amateur Radio licensee has an individual responsibility to improve their knowledge and training.

The monthly book raffle was won by **Jonathan**

**W5WJC.** The book for August was ARRL's "The Best of the Doctor is In".

Meeting closed at 8:19 p.m.

#### Program:

**Ralph N6RH** presented a program on operating the new digital modes FT8 and FT4 using WSJT-X and JTAlert. The program included live on-air contacts using the AE5P station remotely.

## FROM THE PRESIDENT

Elmers and more...

### - PART 5

Concluding a five part series of articles written by ALAN WOLKE and published on tek.com.

In amateur radio, the term "Elmer" refers to a mentor, or to the act of mentoring others. This is integral to the ham radio spirit of helping others.

Many more-experienced hams will volunteer their time to answer questions, provide tutoring or teach classes to anyone wishing to enter amateur radio ranks, or who simply wishes to learn more about it.

The amateur radio community is a diverse network of clubs and individuals with expertise in a variety of areas. For some, sharing or publishing practical information is their way of giving back to the ham radio community.

There are many engineering and scientific professionals involved in ham radio as well as many celebrities. Journalist Walter Cronkite, baseball pitcher Ron Swobada, TV/radio personality Jean Shepherd, Senator Barry Goldwater, and musician Joe Walsh are among the thousands of famous personalities who are or were hams. Nobel Prize winner for Physics Joseph Taylor is an avid ham, and has developed several

modulation formats that are suitable for extremely weak signal communications.

#### Getting Involved

Hams are a friendly and inclusive bunch in general. There are local clubs in many places that will give you a place to learn or provide equipment you may not have access to. All you have to do is be courteous and you're sure to find someone to help you along. Study up, get your license, and before you realize it a whole range of possibilities becomes available.

Reprinted from an article by W2AEW found at <https://www.tek.com/blog/ham-radio-facts>

73 de Jack York

KG5POU

[gtjakco@yahoo.com](mailto:gtjakco@yahoo.com)

## FROM THE VP CHAIR

This summer has passed faster than I wanted, and so many items are still not completed. Of course it doesn't help when you take a week trip to Roatan, Honduras. The diving was very good, but the current was a little strong at times due to the season change.

September is their rainy season and the wind changes direction affecting the currents in the sea. We ended up doing several drift dives to reduce the effects of the currents.

Since we were using nitrox we needed to keep our work load low, and wearing SCUBA gear isn't a very efficient way to move through water in a strong current.

The time between morning dives is too short to consider using a radio during the surface interval. Lunch time and the time between the afternoon and night dives would have been a good

time for calling CQ. Unfortunately I decided not to bring my KX2 at the last minute.

So instead I read and watched videos waiting for the next dives while off gassing the nitrogen gained during the day. Nitrox helps reduce that time, but you still need a surface interval of a couple of hours.

Lauren read 3 books on the trip without breaking a sweat. After she finished each book I received a complete book report. As I write this I'm being chastised, again for not bringing a radio on the trip! According to my spouse I spent all that money and time on the radios and I'm not using them enough. All I could do is smile and state that the ARRL September VHF contest is just a few weeks away.

But I think the same thing could be said for the tractor too. I haven't prepared the winter pastures yet and August is almost over. Maybe I could mount a radio in the tractor. A new radio just

for the tractor, yeah, that is what I need...

73, Bill KT5TE

[bill@watershipfarm.com](mailto:bill@watershipfarm.com)

## NOTES FROM OUR EC

It's 28 Aug and our prayers have been answered, we have rain. I haven't taken a look at the forecast and don't know how long it will last.

August has been quiet as far as hurricanes go. That is until the last few days. Dorian has collected its winds and now is a cat 1 hurricane in the Caribbean very close to Puerto Rico. Tropical Depression Erin is in the Atlantic Ocean 165 or so miles ESE of Cape Hatteras, North Carolina. Her projected course will follow the Atlantic coast towards Canada. I'm expecting our Hurricane 2019 party dance cards may start filling up in September.

The ARRL North Texas SEC, Greg Evans, K5GTX, has sent out a request to the districts asking how

many hams would be able to deploy to Puerto Rico. A QST email has been sent out requesting this information.

The question truly is, how many of you can and if tasked would be able to deploy across town, across Texas, outside of Texas or even to Puerto Rico?

This IS NOT a notional or rhetorical question. I really need to know those answers from each and every one of the members of NARC. Those of you who receive this missive and are not members of NARC, can you deploy in support of your club or section in a similar manner?

There are still 3 months left in the 2019 Hurricane season, we're not clear yet.

73 de John Chapman  
KC5MIB  
[jlchapman2@juno.com](mailto:jlchapman2@juno.com)

## VE TESTING

Our next VE testing is scheduled for **Wednesday September 18 at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School.

Applicants should bring a picture ID, the original and a copy of their current Amateur license, the original of any CSCE's and \$15 to cover the cost of the exam(s). Correct change is always very much appreciated.

More information is available on the club website at <https://w5nac.com/about/testing/>

73 de AE5P.

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

## NEW HAMS

At our VE testing session August, we had one applicant. We are pleased to report that Aaron Baker KI5FIQ upgraded from Tech to General. Congratulations Aaron.

## 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.

## NEXT MEETING

The next meeting will be **Wednesday September 4th at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School. A program is planned.

## BOOK RAFFLE

Each month, we give away a book on a topic of interest to Amateur Radio operators. Everyone present at the meeting

will receive one ticket. Additional tickets can be purchased at \$1 per ticket, or 6 tickets for \$5. A ticket will be drawn at the end of the meeting for the book of the month.

The book for August will be "Magic Band Antennas for Ham Radio; 6 meter Antennas You Can Build" by Bruce Walker, N3JO. You must be present at the meeting to win.

## ARRL INFORMATION

The latest news and information on the North Texas Section of the ARRL can be found at <http://www.arrl.org/sections/view/north-texas> and <http://www.arrlntx.org/>.

It is recommended that all ARRL members in the NTX Section register at <https://arrlntx.groups.io/g/section> to receive email much like our own W5NAC-Hamlist email reflector. There are several sub-groups that

some may want to join also for special interest topics.

If you are not yet an ARRL member, please see Army AE5P at any meeting. He always has ARRL membership applications with him. A portion of your first year's ARRL dues are donated back to the club when you join ARRL through NARC. See Army for details.

## 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.

### ARRL SEPT VHF

September 14-16, 2019

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

### TEXAS QSO PARTY

Sept 14-15, 2019

<http://www.txqp.net/>

### CQ WW RTTY

Sept 28-29

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

### CQ WW SSB

Oct 26-27, 2019

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

### ARRL SWEEPSTAKES

#### CW

Nov 2-4, 2019

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

### ARRL SWEEPSTAKES

#### SSB

Nov 16-18, 2019

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

## Meteor Scatter Communication

by

Thomas Atchison W5TV

Meteor scatter communication is a radio propagation mode that utilizes the ionized trails of meteors during atmospheric entry to establish brief communication paths between radio stations.

As the earth moves along its orbital path it encounters millions of particles that burn up in the atmosphere. As this happens the particles create trails of ionized particles in the E layer of the atmosphere that can last for several seconds. If these trails are dense enough they can reflect radio waves at certain frequencies. These frequencies are usually between 30 MHz and 150 MHz, but they can be over a wider range of frequencies on occasion. Because these ionization trails only exist for a few seconds they create only a brief window of opportunity for communication.

The earliest direct observation of interaction between meteors and radio propagation was reported in 1929 by Hantaro Nagaoka of Japan. In the ensuing years several people noted various propagation events that finally led to the 1946 announcement by the FCC that there was a direct correlation between enhancements in VHF radio signals and individual meteors. In the 1950s the National Bureau of Standards and the Stanford Research Institute had limited success at actually using ionized meteor trails as a propagation medium.

Because the presence of a meteor trail at a suitable location between two stations cannot be predicted, stations attempting meteor scatter communications must transmit the same information repeatedly until an acknowledgement of reception from the other station is received. Established protocols are employed to regulate the progress of information flow between stations. While a single meteor may create an ion trail that supports several steps of the communications protocol, often a complete exchange of information requires several meteors and a long period of time to complete. Be patient!

Many forms of communication mode can be used for meteor scatter communications. Single sideband audio transmission has been popular among amateur radio operators in North America attempting to establish contact with other stations during meteor showers without planning a schedule in advance with the other station. The use of Morse code has been more popular in Europe, where amateur radio operators used modified tape recorders, and later computer programs, to send

messages at transmission speeds as high as 800 words per minute. Stations receiving these bursts of information record the signal and play it back at a slower speed to copy the content of the transmission.

Since 2000, several digital modes implemented by computer programs have replaced voice and Morse code communications in popularity. The most popular mode for amateur radio operations is MSK144, which is implemented in the [WSJT-X](#) software. This software was developed by Joe Taylor, K1JT. An interesting article entitled "[WSJT: New Software for VHF Meteor-Scatter Communication](#)" by Joe Taylor was published by the ARRL in the December 2001 QST, pp. 36-41. A later article entitled "[The MSK144 Protocol for Meteor-Scatter Communication](#)" by Steven J. Franke, K9AN, and Joe Taylor, K1JT, was published in the ARRL publication QEX, September/October 2017, pp. 8-14.

NOTE: If you are on the internet and you do a CTRL-CLICK on the above hyperlinks (the blue font) you will get the article you want or the page for WSJT-X

If you are interested in trying some meteor scatter communication and you already have the ability to use digital modes (PSK31, FT8, etc.) then all you need to do is download WSJT-X and start it. So far I have only used 6 meters for meteor scatter. The usual frequency for 6 meter meteor scatter is 50.260. A few of the stations I have worked are as follows: XE2OR (DL98), W8JGU (OH), KF2T (VA), N8GA (TN), W4IMD (GA), and W4ENN (AL). I urge you to give this mode a try.

If you are not already using any digital mode you may want to explore that possibility. Basically, you need a computer with a sound card and some method of connecting the radio to the computer. A company called [Signalink](#) has a product that will do a good job of connecting a computer to a radio and it has a sound card built-in. Use the hyperlink to get to the Signalink home page.

If I can provide you with additional information please let me know. Understand that I have not been doing this very long but it is fun.



## REPEATERS – PART TWO

by

Army Curtis AE5P

Last month we tried to cover some of the basics of repeaters. While many of us locally tend to think of 2 meters when we think of repeaters, they are used on many other bands as well. You will find repeaters on 10M (29 MHz), 6M (53 MHz), 2M (146 MHz), 1.35M (222 MHz), 70cM (440 MHz), 33cM (902 MHz), and 23cM (1296 MHz). Each band has different characteristics, and different offsets. You can find a complete listing of repeaters in the ARRL Repeater Directory.

The vast majority of repeaters use FM voice, however the use of digital voice modulation is increasing. In some areas of the country, Amateur TV repeaters are popular.

Each of the different Amateur Radio bands shown above has specific frequencies reserved for repeaters. While it is possible for any licensed Amateur to build and install a repeater on any Amateur Radio frequency, coordination bodies have been formed in most areas to manage the frequencies used to avoid undue interference between repeaters. In Texas, that coordinating body is the Texas VHF-FM Society (<http://www.txvhffm.org/>). You can find a wealth of information about Texas repeaters on their web site.

As the popularity of Amateur Radio repeaters increased, it became necessary to require most repeaters to utilize a sub-audible tone to minimize interference. This requires each Amateur to set their radio to produce the correct tone for the repeater they wish to access. Modern VHF radios designed for repeater use can be set to transmit a sub-audible tone, and can also be set to control the radio's squelch with a sub-audible tone. A digital code is sometimes used in place of the sub-audible tone.

### Repeater Operating Practices

1. Monitor the repeater to become familiar with any peculiarities in its operation.
2. To initiate a contact simply indicate that you are on frequency. Various geographical areas have different practices on making yourself known, but generally "This is AE5P monitoring" will suffice. Please don't 'ker-chunk" the repeater (key up without identifying yourself) just to see if the repeater is working.

3. Identify legally: you must identify at the end of a transmission or series of transmissions and at least once each 10 minutes during the communication.
4. Pause between transmissions. This allows other hams to use the repeater (someone may have an emergency). On most repeaters a pause is necessary to reset the timer. Some repeaters use a 'courtesy tone' to indicate that the timer has been reset and it is okay for the other party to begin their transmission.
5. Keep transmissions short and thoughtful. Your 'monologue' may prevent someone with an emergency from using the repeater. If you talk long enough, you may actually time out the repeater. Your transmissions are being heard by many listeners, including non-hams with 'public service band' monitors and scanners. Don't give a bad impression of our service.
6. Use simplex whenever possible. If you can complete your QSO on a direct frequency, there is no need to tie up the repeater and prevent others from using it.
7. Use the minimum amount of power necessary to maintain communications. This FCC regulation [97.313(a)] minimizes the possibility of accessing distant repeaters on the same frequency.
8. Don't break into a contact unless you have something to add. Interrupting is no more polite on the air than it is in person.
9. Repeaters are intended primarily to facilitate mobile operation. During the commuter rush hours, base stations should relinquish the repeater to mobile stations.
10. Some repeaters are equipped with autopatch facilities which connect the repeater to the telephone system to provide a public service. With the widespread use of cell phones, almost all of the autopatch facilities have been discontinued.
11. Repeaters are assembled and maintained at considerable expense and inconvenience. Usually an individual or group is responsible and those who are regular users of a repeater should support the efforts of keeping the repeater on the air.

These operating practices were taken from The ARRL Repeater Directory. There is a wealth of information in the front of these directories and is highly recommended reading.

As point 9 above notes, repeaters are intended primarily to facilitate mobile operation. Antennas on mobiles are normally a vertical whip of the appropriate length. As noted previously, repeaters are almost always FM. The result of this is the defacto standard that FM repeater operation is done using vertically polarized antennas. In the case of

SSB and CW operation on the VHF bands, the defacto standard is to use horizontally polarized antennas.

Why is this important? Tests have shown that using different polarizations between the transmit and receiving ends of a direct line of sight radio path can result in up to 30dB of loss. The antennas on a repeater are all vertically polarized. If you are using an HT with a 'rubber duck' antenna and you turn the HT so the antenna is horizontal, you may have just dropped your signal level into the repeater by up to 30dB, or 1,000 times smaller. An HT is not noted for being a power house to start with. Don't make a poor situation even worse by not holding the antenna vertically.

We will continue this next month. Stay tuned.