

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.



JUNE MINUTES

The June meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on June 3rd. Because of the Wuhan virus, the meeting was again held as a virtual meeting using the club's 147.32 repeater. **President Bill KT5TE** opened the meeting at 7:00 p.m. Nine members and guests 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.

Recent contests included the CQ WW WPX CW contest, which is one of the best.

Field Day is scheduled for June 27-28. Members are encouraged to operate their own stations from home as a Class 1D. This year, the FD rules have been revised to allow Class D stations to make contact with other Class D stations for credit. Members who do operate during Field Day should include their association with Nacogdoches Amateur Radio Club when they send in their logs to ARRL.

Thanks to **Steve WB5IDY** for making facilities available at the North

Street Church of Christ for VE testing this month. Steve hopes we may be able to continue VE testing at that location in future months as well.

Program: Army AE5P presented information on Field Day operation this year. As noted previously, members are encouraged to operate from their home stations as a Class 1D entry. ARRL has modified FD rules for this year to allow Class D stations to contact other Class D stations for credit. Each member must include note of their association with Nacogdoches Amateur Radio Club when they send in their logs.

FROM THE PRESIDENT

Summer Break?

This Spring-Summer has been so busy the only time I've used my radios has been for net meetings. With Field Day this coming weekend I have the perfect excuse to leave the farm work alone for a couple of days. This will be a mini vacation in the a/c of my shack. There is even hope I'll get those 6 rolls and 8 sheets of film developed that have been piling up on the counter next to the unmixed chemical envelopes.

So far this year it seems for every task I complete I create several more. Whether the work is in the ham shack or on the farm it's the same. A good example would be the accumulator wheel bearings disintegrating while baling this past week leaving me to hand throw too many bales. One of the hubs will have

to be replaced, but the upside is the new hub has a grease zerk. Thus no more removing the hub and repacking the bearings each year. The seals and bearings will have to be replaced and repacked periodically because this sugar sand in the Grapeland area always finds a way into everything. Also the use of a power washer renders seals ineffective.

Those members who have horse/livestock trailers, 5th wheels, boat trailers or their mobile ham shack trailers should be familiar with repacking their bearings every year regardless of how much use the trailer gets. Surely nobody takes their trailers to a mechanic to repack the bearings? Why miss all the joy of palming grease into bearings?

And, of course, you don't use those new fancy, girlie nitrile gloves? I remember back in those early years replacing seals and packing the bearings on the M60A1 tanks... Memories...

I hope you have a chance to get on the air this weekend, June 27-28. Take a glance at ARRL's website for Field Day and enjoy your weekend.

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

73, Bill KT5TE

bill@watershipfarm.com

FROM THE VP CHAIR

Water Under the Bridge

As we enter Hurricane Season when weather awareness becomes more important, many of us brush up on our knowledge of the meteorological sciences. A companion study of hydraulics and hydrology can also help us during weather emergencies as both radio operators and general citizens.

The Federal Emergency Management Agency (FEMA) was created in 1979 with a mission statement to "... mitigate all hazards ...". There are only 10 regional offices in the US with our closest location in Denton. All prior flood control efforts were overseen by the US Army Corps of Engineers, but their focus was not on local flooding, only major riverine basin hydraulics. FEMA is generally the sole source

and underwriter for flood insurance.

The National Flood Insurance Program (NFIP) was created by Congress in 1968. Previously flood damage was covered by property owner's insurance until slowly, companies began to exclude flood incidents in the 1950s. Today, Flood insurance is a subsidized program to the tune of \$24 billion a year. Your flood insurance premium does not come close to covering the payouts issued by FEMA.

Floodplain regulations and guidelines from FEMA are mostly based on reducing risks for flood damage. This is often confused with other agencies who oversee environmental concerns, wildlife, wetlands, and waters of the U.S.

Interestingly, the "100 YR flood" has been the metric for insurance and engineering design, but it does not mean a flood happens once every 100 years. It really means a flood event has a 1% (1/100) chance of

happening every year. Other flood event data is also published for 2, 5, 10, 25, 50, & 500 year frequencies. Houston had areas with 500 year flood events during Hurricane Harvey. A 100 year event in Nacogdoches County is 10.2" of rain in a 24 hour period. A 25 year event is still a modest 8.7" of rain in a single day, illustrating that a 100 year event is not four (4) times as much a 25 year storm.

The terms "Floodplain" and "Flood Way" are often confused. The Floodplain is the entire flood corridor which includes the Flood Way and flood fringes. The Flood Way is an imaginary line created by a computer model based on a point in the flood zone where water will rise one (1) foot if we fill the flood fringe areas. Sound crazy? Not really. In Nacogdoches we allow development in the floodplain if the property is filled to an elevation above the flood elevation, BUT a developer cannot fill past the imaginary line

of the Flood Way thus limiting an increased flood impact to properties up and downstream of a property. Generally we can fill parts of the Floodplain, but no development can be permitted in the Flood Way, except for at-grade parking lots, power poles, etc.

(For an excellent graphic showing these terms, please see the end of this newsletter)

The first flood maps were published in Nacogdoches in 1981. Along with the maps, FEMA provided a detailed study that shows specific flood elevations for each segment of our major creeks. This study is used by the City Flood Plain Administrator to provide a specific base flood elevation for a given property. The flood maps were updated in 2010 but not with new hydraulic modeling, only corrected or updated background street maps. Most cities offer free online versions of FEMA flood maps, typically in a web based GIS system over aerial

photography; a very helpful tool.

Prior to the issuance of the maps in 1981, we had no metric to establish if a property was in a flood zone except for local historical knowledge. This is why we currently have apartments, homes, and businesses that flood every few years. They were built prior to maps published in 1981 and are in the Floodplain, well below the flood elevation. Nacogdoches has approximately 1140 parcels (4,400 acres) partially or wholly in the Floodplain including over 425 buildings.

FEMA lacks the personnel and resources to review development and enforce regulations for building codes that limit flood risks. Enforcement duties are relegated to Local Flood Administrators who permit any construction activities within the flood zone. Most all cities have a FEMA mandated Flood Ordinance which is enforced by local permit authorities, but mirrors all Federal flood

mitigation requirements. It is important to note that the intent is not to prohibit development in the Floodplain, but instead to manage it with limited risks.

Moral of the story: Build on a hill ...

73, Steve WB5IDY

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NOTES FROM OUR EC

Happy Birthday! The Republic has stood for 244 years. What changes we have seen. May she continue to stand.

Of course we have to touch on the 2020 Hurricane season. It is off and running now, but not very active yet. There were 2 storms that formed this month and that was it. Cristobal made land fall and chased up the Mississippi River valley and didn't even bother to give us any rain on this side of the Sabine River.

And it looks like we have more rain in the 4 day outlook. I didn't look much farther forward than that. The mill received 2.3 inches today (24 Jun), 2 inches yesterday. We have standing water in parts of the woodyard. Not enough water to stock with crappie or bluegill.

CQ Field Day, CQ Field Day, CQ Field Day...this is KC5MIB I have you one delta North Texas, thanks for the contact, KC5MIB, QRZed. And so it begins, Field Day 2020. Thanks to "Rona", Field Day will have a different flavor from past years. We are not dismantling our shack, packing out to a different location, setting it up, stringing antennas (no green monster, thank you Lord) operating, then reversing the process. So I guess no pizza, no visitors, no media (maybe) and no RM's breakfast or peach cobbler with ice cream. There have been some changes in the rules, please take a little time to go over the rules and what station class you will be using.

Good luck to all who operate, and don't forget to get a summary over to Army for the club. And my regular reminder. Remember we have the 2 regular Monday and Thursday nets and 1 July we will have our club meeting over the air net.

Please check in and get the latest.

Don't forget, sign early, sign often (just like voting in south Texas).

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

VE TESTING

Thanks to Steve WB5IDY, we were finally able to resume our VE testing on June 17th. Due to the Wuhan virus, we were forced to cancel the test sessions originally scheduled for March, April and May. Man is it ever nice to be able to resume testing. We met at the North Street Church of Christ and hope we may be able to continue there in future months.

The June VE session saw 5 candidates and produced one upgrade to Extra, one new General, and three new Techs. With offices still closed at ARRL, it may be a few weeks before new call signs can be issued.

For the latest updates, please check the club website at:

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

73 de AE5P.

email: 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

The cryptographic puzzle in last month's newsletter was correctly solved by Aaron KI5FIQ and several other club members. For being the first, Aaron received a copy of the ARRL Antenna Compendium Volume 8.

73, de AE5P

NEXT MEETING

The next meeting will be a virtual on-air meeting **Wednesday July 1st 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.

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 FIELD DAY

June 27-28, 2020

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

CQ WW VHF

Jul 18-19, 2020

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

NAQP, CW

Aug 1, 2020

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

NAQP, SSB

Aug 15, 2020

<http://www.ncjweb.com/N AQP-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>

SPORADIC E PROPAGATION

by
Thomas Atchison W5TV

In the atmosphere around the earth there is a region that extends from about 50 km to over 500 km where some of the molecules of the atmosphere are ionized by radiation from the Sun. This produces an ionized gas that is referred to as the ionosphere. In the ionization process electrons are added to or removed from molecules to form negatively or positively charged ions and free electrons. The ions, of course, give this region its name.

During daylight there are usually four ionization regions present, the D, E, F1, and F2 regions. The D region is normally from 50 to 90 km, the E region from 90 to 140 km, the F1 region from 140 to 210 km and the F2 region above 210 km. The D region usually weakens the lower HF frequencies (160 m and 80 m) by absorption. Fortunately, at night, the D region almost disappears and this allows the lower frequencies to reach the higher layers and be refracted to more distant stations. The E, F1, and F2 regions, when they are present, refract HF signals depending on the radio frequency and the denseness of the ionization.

At times, more densely ionized clouds can form in the E layer. These clouds may form at any time, they may be large or small, and they may or may not persist. These are called **sporadic E layers**. The refracting ability of sporadic E layers depends on the frequency of the transmitted signal and the density of the ionization. Sometimes a sporadic E layer is transparent and allows most of the radio wave to pass through to the F layers and at other times it may refract the radio wave completely. In those cases where the refraction is not total but variable the result is fading of the radio signal. Basically, sporadic E skip is caused by patches of ionization in the E layer. It is possible that sporadic E layers can have a detrimental effect on HF signals. If the sporadic E layer has enough ionization to refract an HF signal it would prevent the HF signal from reaching the higher F layer and therefore shorten the distance that the HF signal would propagate.

The mechanism behind sporadic E is not well understood. It is thought that there may be several phenomena that could give rise to its formation. Here are some possibilities:

- **Meteors:** There is some evidence for believing that one phenomenon that gives rise to sporadic E is the entrance of meteors into the atmosphere. Typically meteors burn up in the E region, and there could be some connection.
- **Electrical storms :** These may extend high in altitude and there are electrical effects well above the clouds. It is believed these could supply energy for the formation of sporadic E clouds.
- **Auroral activity :** The occurrences of Sporadic E in the winter at night have also been linked to auroral activity. This is certainly the case for auroral sporadic E that is the result of energetic electrons entering the atmosphere from the magnetosphere.
- **Upper atmosphere winds:** Some theories suggest that shearing forces caused by the fast moving winds in the upper atmosphere may give rise to these intense clouds of ionization, particularly in temperature regions.

Sporadic E activity can occur any time, however, during the day there seem to be two main peaks of time when they occur. The first is midday and another is early evening. Sporadic E activity is usually greater in the summertime. In North America, we often experience sporadic E from June to August.

Regarding sporadic E refraction, the Maximum Useable Frequency (MUF) varies, but it is most commonly in the 25 to 150 MHz range. Communication distances range from 800 to 2200 km. The amateur bands that are most often affected are the 10 meter, 6 meter, and 2 meter bands; however, the 1.25 cm band may occasionally be affected. When sporadic E ionization clouds form, activity is normally heard in the lower part of the radio spectrum first. The MUF tends to rise depending on the level of ionization so higher frequencies begin to appear. That is, the level of ionization usually rises until it reaches a peak and then it falls away.

If you wish to pursue additional information regarding sporadic E propagation see the following URLs:

<https://www.electronics-notes.com/articles/antennas-propagation/ionospheric/sporadic-e-es.php>

https://www.researchgate.net/publication/227207773_A_Tutorial_Review_on_Sporadic_E_Layers

FIELD DAY THIS YEAR

By Army Curtis - AE5P

In a universe long ago and far, far away I attended my first Field Day. I had been a ham for just about a year, and frankly I don't really remember much about that event except watching my mentor and friend Katashi Nose KH6IJ take apart and rewind the trap coils in a Mosley TA-33 Jr. antenna that was to be used for Field Day. I had no idea you could do that sort of thing to a factory made antenna. I had a whole bunch of learning to do.

This learning stuff for me is one of the major fun things about Amateur Radio. There is so much to learn about so many things. You simply cannot do it in just a year or two. It becomes a life long journey, and there is always something new to learn.

This year will be something different with Field Day and again a chance to learn some more new things. This year we will all be operating FD from home. To my somewhat warped mind, this has its good points as well as some not so good points. We (NARC) have held Field Day in past years at many different locations; Swift Hill park, in front of the old Stone Fort building on the SFA campus, the old Anderson Dairy Farm in Melrose, the Pecan Park pavilion, the parking lot of the Expo Center, behind the Pilot's Lounge at the Nacogdoches Airport, and last year at the new EOC building off FM3314. And I'm sure I have forgotten a few.

For those of you who have participated in our Field Day events in the past, we certainly will miss meeting old friends who drop by the FD site. We will miss the chance to meet various City and County officials who have taken time out of their day to drop by our FD site. We will miss the comradery of our group dinner Saturday evening and our early morning breakfast Sunday. We will miss the chance to introduce Amateur Radio to the public, and possibly even get some new hams out of the experience. We will miss the chance to create new memories, most of them good, which come from these events.

But we won't miss the bugs. We won't miss the summer heat and high humidity that comes this time of year in East Texas. We won't miss struggling to learn a new and often confusing new radio in a short time. We will be able to operate from our familiar home station, with our own radio and our own computer and our own antennas. But there will still be lots to learn. This year each of us has the full contest period to operate, allowing each of us the chance to take our time to really explore this great hobby.

This year we will all be operating as a Class 1D station, using our own call sign. With only a few exceptions we are all located in the North Texas section, so the exchange we will send is simply "One Delta North Texas" or "1DNTX" if you are on CW or digital.

In past years, essentially all activity was on SSB or CW. This year look for a whole lot of activity to be on FT8 and FT4. Be sure you are using the most current version of WSJT-X, now on vers. 2.2.2 and that you have set your FD exchange into the program at File>Settings>Advanced. With all the stations expected to be active on these modes this year, don't hesitate to check other bands and other frequencies for activity.

There always seems to be a lot of activity on the phone portions of the bands during Field Day, and it can be difficult to make contacts. Ah ha! A learning opportunity! Keep in mind that if you try and answer a station calling CQ as soon as he quits calling, you are going head to head with every other station trying to call him. Wait a few seconds; let the other stations battle it out with each other; when the calling starts to die down then throw your call in. Don't send his call; just send yours. He already knows what his call is. This process of calling at the end of the crowd is called "tail-ending" and it can work extremely well. Spend some time listening to how each calling station is operating. Does he always answer quickly or does he delay a little? What is his rhythm? Use that to your advantage. You'll be amazed how well this works.

You will need to keep a log. This is pretty easy to do, especially with a logging program such as the one from N3FJP. Again, be sure you have the latest version installed. Log all of your contacts into the program. If you operate digital modes like FT8, you may find it easier to use the logging built into WSJT-X for those contacts, then after the contest use the wsjt_log.adi file to transfer your digital contacts into the N3FJP log. In N3FJP FD Log, just hit File>Write Cabrillo (Contest Submittal) File.. and it will allow you to fill in some blanks and file your report. Remember to include on the top line of this page "Nacogdoches Amateur Radio Club" as your club or group name. Leave number of participants blank. Notice on this form that there are many of the usual bonus point opportunities that will still be available and provide more learning opportunities. Look especially at such items as 'W1AW message', 'Message to SM', 'Summary submitted via www.b4h.net/cabforms', and possibly others.

By all means check out and review the rules for Field Day by visiting <http://www.arrl.org/field-day> . There are a lot of resources available to you there, so be sure to check them out carefully BEFORE Field Day starts.

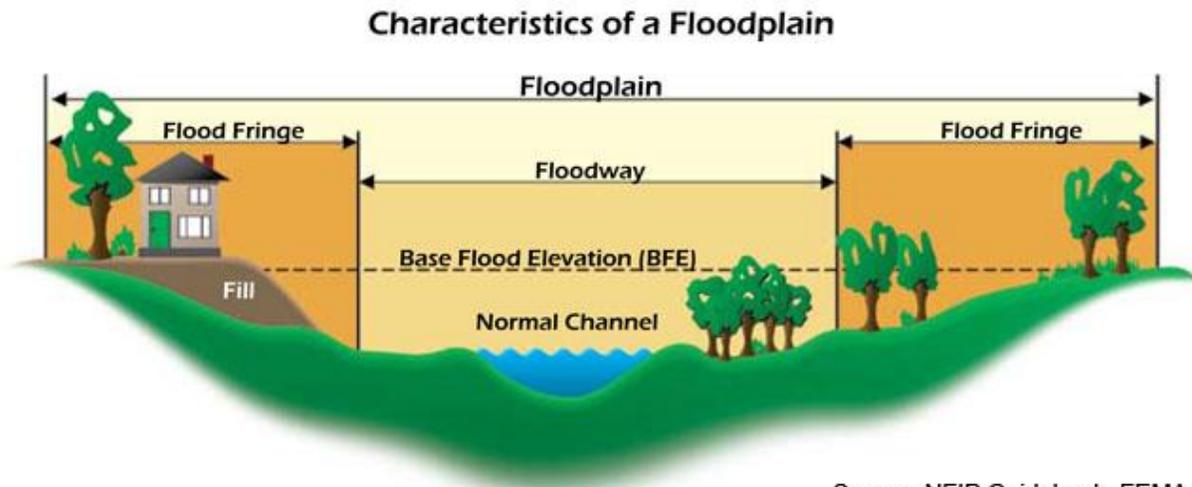
There are always lots of interesting things happening on the bands during Field Day, so try hard to check all the different bands and modes that you can. Are you having problems getting through the pile ups? Wait until its dinner time on the East Coast and try again then. Go to bed real early, and then get up to work the bands during the late night/early morning hours. Not nearly so many stations on the air then and much easier to make contacts.

Remember that you can use the 160, 80, 40, 20, 15, and 10 meter HF bands, and all bands above 50 MHz. All contacts must be simplex, which means you cannot make contacts on a repeater, But you certainly can make simplex contacts on 2M, and remember that current rules allow you to solicit contacts via a repeater or via telephone.

So, get on the air this weekend for Field Day. Making lots and lots of contacts is not really the point of Field Day. Having fun learning new and different things about your hobby is the real point, especially those things that make you a better operator and better able to effectively contribute to disaster and/or emergency communications when the need arises. The need will arise. Will you be ready?

CHARACTERISTICS OF A FLOODPLAIN

From the Vice President's column



Source: NFIP Guidebook, FEMA