

CQ Chatter

JULY 2020

VOLUME B20 • ISSUE 5

WOOD COUNTY AMATEUR RADIO CLUB

| | | |
|-----------------------|---------------|------------------------|
| President | WB8NQW | Bob Willman |
| Vice President | KD8VWU | Doug Perez |
| Secretary | N1RB | Bob Boughton |
| Treasurer | KD8NJW | Jim Barnhouse |
| Board Member | KE8CVA | Terry Halliwill |

Minutes

WCARC Meeting

June 8, 2020

Due to corona virus restrictions the meeting was conducted on the 146.18/444.475 MHz repeater system

Bob-WB8NQW, presiding

Present: WD8LEI-Eric, KE8CVA-Terry, KG8FH-Jeff, KD8RNO-Lynn, WE8TOM-Tom, WB8VUL-Hoot, W8PSK-Phil, N1RB-Bob, N8MSU-John, KC8EKT-Ruth, WD8JWJ-Bill

Meeting called to order: at 7:30 with Pledge of Allegiance.

Minutes: of April business meeting as published in May CQ Chatter were approved.

Treasurer's Report: no report requested due to public nature of meeting.

Old Business:

- Phil (PSK) reported on recent activities taking place to correct the repeater system noise problem. After several tests, it was determined that the Diamond antenna was defective, with cracks in the fiberglass and water entering the structure. A new replacement was ordered and installed with the help of Tom (TOM) and Bob (RB).
- Bob reported on the foxhunt that took place on Saturday, May 2. Jim-KD8NJW served as the fox, and was finally located after over an hour, at

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Net Check Ins

Jun 2 **Traffic: 0**

N1RB (NCS)
KD8NJW
N8VNT
KC8EKT
KG8FH
WD8LEI
K8JU
KB8QEW
WB8NQW
WE8TOM
KD8RNO
KA8VNG
KE8CVA
K8BBK
KE8NEC
W8PSK
N8MSU
KC8NKC
WD8PIC (19)

Jun 9 **Traffic: 0**

N1RB (NCS)
K8BBK
KG8FH
WD8LEI
W8PSK
WB8NQW
KA8VNG
WE8TOM
KD8RNO
WD8ICP
N8MSU
K8JU (12)

BRAIN TEASERS

1. What are the frequency limits of the VHF spectrum?
 - a.) 30 to 300 kHz
 - b.) 30 to 300 MHz
 - c.) 300 to 3000 kHz
 - d.) 300 to 3000 MHz
2. How much power is being used in a circuit when the applied voltage is 13.8 volts DC and the current is 10 amperes?
 - a.) 3.8 watts
 - b.) 0.7 watts
 - c.) 23.8 watts
 - d.) 138 watts
3. What may occur if data signals arrive via multiple paths?
 - a.) transmission rates can be increased by a factor equal to the number of separate paths
 - b.) transmission rates can be decrease by a factor equal to the number of separate paths
 - c.) no significant changes will occur if the signals are transmitted using FM
 - d.) error rates are likely to increase

July Contests

The contest lineup for the month of July is given below. Please note that the WARC bands (60, 30, 17 and 12 m) are never open to contesting.

| | | |
|--------------------------------------|-----------------------|------------------|
| Jul 1 | <i>0000 to 2359 Z</i> | 160 m to 10 m |
| Canada Day 'test | | all modes |
| Jul 4-5 | <i>1400 to 1400 Z</i> | 160 m to 10 m |
| Marconi Memorial 'test | | CW |
| Jul 18-19 | <i>1800 to 0559 Z</i> | 80 m to 10 m |
| North American QSO Party | | RTTY |
| Jul 25-26 | <i>1200 to 1200 Z</i> | 80 m to 10 m |
| RSGB Islands on the Air 'test | | CW/SSB |

July Hamfests

July 11 Northeastern Indiana ARA Hamfest. Auburn-Cord-Duesenberg Museum, Auburn, IN.
web: w9ou.org

July 11 Northwestern Ohio Black Swamp RS Hamfest. St. Luke's Lutheran Church, Temperance, MI.
web: NA

July 19 Van Wert ARC Hamfest. Van Wert County Fairgrounds, Van Wert, OH.
web: w8fy.org

Aug 8 Land of Lakes ARC Hamfest. Gateway Community Church, Angola, IN
web: NA

minutes— from p. 1

Sawyer Quarry County Nature Preserve. Participating as fox hunters were: Bob-WB8NQW, Phil-W8PSK, Terry-KE8CVA, Linda-N1LB, Bob-N1RB and Rex-KC8PFP.

- Bob (RB) reported on the CW net, which is held every Tuesday at 8 PM (just before the VHF/UHF net) on 28.335 MHz. The net is intended to allow beginners to copy and send slow speed CW. Participants over the past few weeks have been: KG8FH, KA8VNG, N1LB and WD8JWJ. All are invited to join in.
- Bob (NQW) read the basic items that PSK/RB had presented for Field Day under the new circumstances. Social distancing will be followed but masks are optional. Two rigs and three antennas are available for set up. The Club will manage two operating positions, and CVA will also have one. The need for tables, power supply and connections, etc., was detailed. Consensus is that meals will be ordered in (pizza, subs?). The question of whether to stay overnight or not hinged on whether NM8W was staying over. A quick query to him got a negative result. The general plan is to set up around 11:30 to noon on Saturday the 27th and tear down late Sunday morning. Late night operation on Saturday is encouraged.
- Eric (LEI) offered a quick report on ARES activities. He reported no

activations over the past months of quarantine, however the Courthouse is now open to visitors (with masks on), so hopefully the antenna installations for the EOC can be completed soon.

- Bob reported nothing new on the removal of the old repeater antennas from the Administration Bldg. He is awaiting word from Chuck-WD8ICP.

New Business:

- During the past month, the APRS/ Website portal computer crashed and was deemed by John-N8MSU to be unrepairable. Several members offered suitable computers and hard drives to fill the void. Arrangements are being made to get a computer contributed by WD8LEI and outfit it with hard drives contributed by KG8FH. John will undertake to install the operating system and soon the equipment should be in operation.
- Bob next raised the issue of what to do for the July breakfast meeting. Frisch's is now open for service, and the consensus was that the meeting be held there on July 4th at 9:00 AM.
- In the course of trouble shooting and replacing/repairing the repeater antenna, Phil-W8PSK incurred \$251.26 in expenses. He has already been reimbursed by the Club, but he wished to have formal approval by the members. The motion was passed unanimously.

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WCARC Weekly Net

Tuesdays at 2100 all year
147.18 MHz 67 Hz PL

Net Control Roster

| | |
|---------------|---------------|
| <i>Jun 30</i> | <i>N1RB</i> |
| <i>Jul 7</i> | <i>KG8FH</i> |
| <i>Jul 14</i> | <i>KD8VWU</i> |
| <i>Jul 21</i> | <i>KD8NJW</i> |
| <i>Jul 28</i> | <i>WB8NQW</i> |
| <i>Aug 4</i> | <i>N1RB</i> |

NEXT MEETING

Breakfast Meeting

Saturday-July 4

TIME: 9:00 AM

PLACE

Frisch's Big Boy
N. Main St &
E. Poe Rd.
Bowling Green, OH

10 meter Net

informal group
meets

Sunday

@ 20:30

on 28.335 MHz

Fusion Net

Thursday

@ 19:30

on 442.125 MHz

67 Hz PL on FM

Informal net

Net Check Ins

Jun 16 **Traffic: 1**

KD8NJW (NCS)
K8JU
K8BBK
KE8CVA
KG8FH
WD8LEI
W8PSK
WB8NQW
KC8EKT
W4LAT
WE8TOM
KD8RNO
KA8VNG
N1RB
K8LL **(15)**

Jun 23 **Traffic: 0**

WB8NQW (NCS)
KE8CUZ
K8BBK
KE8CVA
KC8EKT
KG8FH
N8DLG-Duane
KD8RNO
KD8NJW
W8PSK
N1RB
WE8TOM
N8VNT **(13)**

Brain Teaser answers: (E) 1-b, 2-d, 3-d

The Sun and Radio—IV

by Paul Harden, NA5N

Radio Emissions from a Solar Flare

The microwave radiation from a solar flare (Fig. 9) is similar to the ionizing radiation. It can produce powerful radio energies for several minutes following a flare, sometimes disrupting satellite and VHF communications. Radio telescopes use 2–10 GHz (S,C and X band) to make maps of the fine structures of the solar flare. 1.4 GHz, the spectral line of hydrogen (L band), is also mapped to show the intensities of local hydrogen and H II during a flare. This reveals the amount of ionization, and recombination near the sun's surface. This is interesting from a science viewpoint, but not necessarily for ham radio.

For the radio amateur and QRPer, the real interest lies in what happens to the HF bands. Radio emissions from a flare can cause noise bursts, buzzing sounds, sudden QSB, continuum noise, and occasionally, a temporary HF blackout. After about 30 minutes following the flare, HF noise levels and propagation return to normal.

QRP Propagation Hint: The most important thing to remember about a solar flare is this: the HF effects are generally only for the duration of the flare event (20-60 minutes) and seldom affect frequencies <10 MHz.

The most damaging effect of a solar flare is actually the arrival of the shockwave 2-3 days later, triggering a geomagnetic storm. This is discussed beginning on the section on Geomagnetic Storms.

The following details of a solar storm is offered for completeness only. These are relatively new solar physics theories, and are presented for those so

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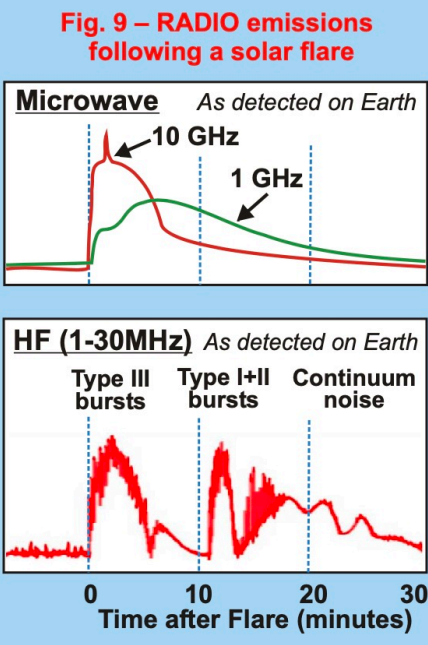
solar—from p. 6

interested, as the information is currently available only in professional astrophysical journals, and certainly not in amateur publications.

Radio Emissions due to the Electrons

The first radio emission to arrive on Earth following a flare is the bursty Type III storm occurring for the first 5-6 minutes following a flare. These are relativistic electrons released by the flare traveling through the Sun's magnetic field (Fig. 10).

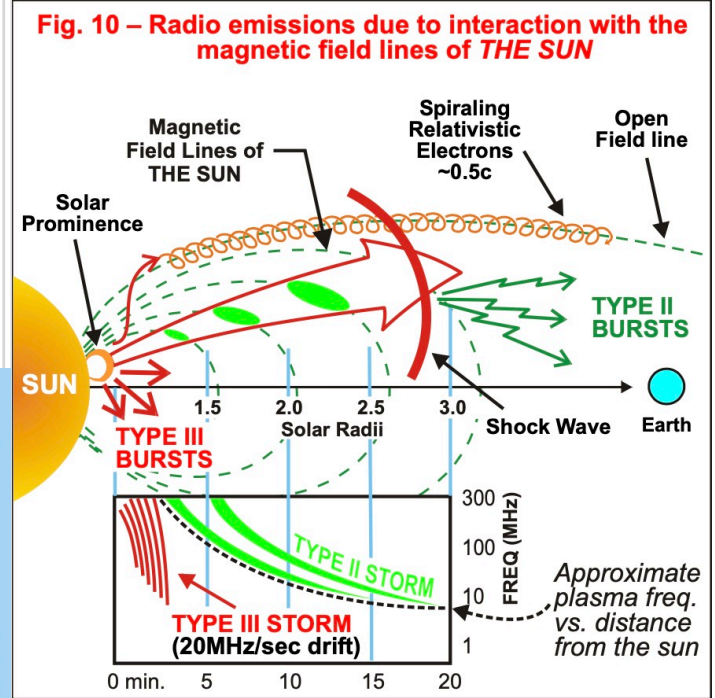
The radio emissions begin around 300 MHz and drift downward in frequency at about 20 MHz/sec. They sound like ignition noise from a fast running engine, or sometimes a "buzz" as they



sweep past your frequency. Seldom will these bursts be heard below 10 MHz. Some of these electrons migrate and travel along the open field lines in a spiraling motion, still about the speed of light, producing continuum noise (wideband) from 10–300 MHz.

Radio Emissions due to the Shockwave

As the shockwave travels through the sun's magnetic field lines, electric currents and bursty radio emissions are generated by the dynamo effect, called a Type II



storm. The Sun's plasma frequency becomes lower at greater distances. Therefore, as the shockwave travels away from the Sun, the bursts are heard at lower and lower frequencies on earth, as shown in Fig. 10.

This is important to astronomers. By measuring the time it takes for the bursts to drift from one frequency to a lower one, the velocity of the shockwave can be determined. Both Type II and Type III sweeps can be used for the velocity determination, and are often reported by NOAA as follows:

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solar—from p. 7

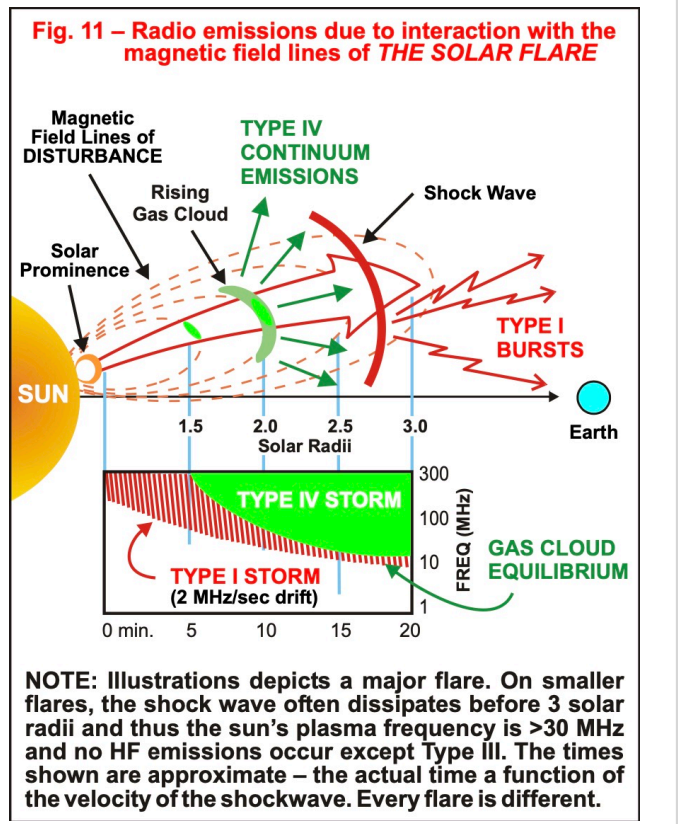
1810UTC M7.8solarflare
1822UTC TypeIIsweep1450km/
sec

NOAA uses this information to estimate the arrival time of the shockwave at Earth, and the intensity of the geomagnetic storm. Of course, you can do this as well! The 1450 km/sec shock wave slows down as it travels along with the solar wind, averaging about 70% of the Type II or III value, or about 1000 *km/sec.* = ~625 *miles/sec.* With the Sun about 93 million miles from earth, the travel time will be ~149,000 seconds, or about 41 hours. With the normal solar wind about 350 *km/s* an increase to 600 *km/sec* generally triggers a **minor geomagnetic storm**, around 1000 *km/sec*, a **major storm**, and much above that, a **severe storm**. These of course, are all rough estimates.

The shockwave also travels through the strong magnetic field lines of the disturbance (Fig. 11), where the electrons and particles get trapped in the closed field lines. This also produces a bursty radio emission called a Type I storm. These drift downward in frequency at about 2 *MHz/sec.* and sound like ignition noise from an idling car. A Type I storm can extend to around 10 *MHz* and persist for 20-30 minutes following a major flare.

Radio Emissions due to the Gas Cloud

Behind the shockwave is a gas cloud of particles from the flare, generating



wideband noise called a Type IV Continuum Storm. The noise begins around 1 *GHz*. The higher the gas cloud rises, the lower in frequency will the noise escape the Sun. (That solar plasma frequency thing again).

These particles rise until the pressure of the gas cloud equals the pressure of the solar atmosphere. At this point (about 15-30 minutes following the flare), the particles become stationary and generate noise down to 10-20 *MHz*, depending upon the height of equilibrium. The Type IV storm can persist for hours following the flare and contributes an overall elevation of noise on HF. The exact mechanism of this noise emission from the gas cloud is not well understood. ■

minutes— from p. 4

- Phil also made a comment about his purchase of a new heterodyne attenuator for fox hunting. The equipment is available for a quite reasonable price, and it outperforms most other methods of attenuating strong signals. He strongly recommends it for the fox hunters.
- Eric commented on a bulletin from DHS concerning jamming of police frequencies during protests. He suggests that amateur direction finding skills could come in handy in such situations.

Adjournment: at 8:30 PM. ■

Recipe Corner ***Pasta e Fagiole***

(Pasta Fazool in southern I-land)

Try a hearty meal that is a hit with all the hungry paisanos

INGREDIENTS

- 2 tbsp. extra-virgin olive oil
- 1/2 lb. spicy (or sweet) Italian sausage
- 1 medium yellow onion, finely chopped
- 2 medium carrots, peeled and finely chopped
- 2 stalks celery, finely chopped
- 3 cloves garlic, minced
- kosher salt to taste

- freshly ground black pepper
- 2 (15-oz.) cans Great Northern Beans
- 1 (15-oz.) can diced tomatoes
- 4 c. Swanson Chicken Broth
- 2 sprigs rosemary, leaves finely chopped
- 1 1/2 c. ditalini pasta (or other small shape)
- Freshly grated Parmesan, for garnish
- Freshly chopped parsley, for garnish

DIRECTIONS

- In a large, deep pot over medium heat, heat oil. Add sausage and cook, breaking up with a wooden spoon, until cooked through, about 5 minutes.
- Stir in onion, carrots, and celery and cook until slightly softened, about 5 minutes.
- Add garlic and cook until fragrant, 1 minute more.
- Season with salt and pepper, then add in beans (with their liquid), diced tomatoes, chicken broth, and rosemary.
- Bring to a boil, then stir in ditalini.
- Reduce heat to medium and cook until pasta is *al dente*, about 8 minutes. Taste and adjust seasoning if necessary
- Serve in bowls garnished with Parmesan and parsley. ■

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