# CQ CHATTER

OCTOBER 2018 VOLUME B18 •ISSUE 8


## 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 |

http://wcarc.bgsu.edu

# A Hole in the Sun's Atmosphere

***from spaceweather.com***

A **jagged hole** in the Sun's atmosphere is facing Earth and spewing a stream of solar wind toward our planet. Time of first arrival was: **Sept. 17-18**. Because the gaseous material reached Earth only a few days before the onset of northern autumn, it may be extra-effective at sparking auroras--a result of "**equinox cracks**" in the geomagnetic field.

**Pink Auroras over Yellowknife—**

On Sept. 14th, a gust of solar wind hit Earth's magnetic field. As the onrushing wind accelerated to 600+ km/second, a bright band of pink auroras appeared over Yellowknife Canada. **Martin Male** photographed the display:

"It was outstanding," says Male. "The pink color was striking!"

Every molecular species has its own

***Aurora Visible from Yellowknife, NWT, Canada***

emission color when excited by particle collisions. Pink is a sign of nitrogen. Most auroras are green--a verdant glow caused by energetic particles from space hitting oxygen atoms 100 km to 300 km above Earth's surface. **Pink appears** when energetic particles descend lower than usual, striking nitrogen molecules at the 100 km level and below. **Equinox cracks** in Earth's magnetic

***continued---on p. 4***

## Net Check Ins

***Sep 4 Traffic: 0***

***KD8VWU (NCS)***
***K8BBK***
***KD8RNO***
***KG8FH***
***WD8JWJ***
***W8PSK***
***WB8NQW***
***KE8CVA***
***KG8FU***
***NA1RB (10)***

***Sep 11 Traffic: 0***

***N1RB (NCS)***
***KC8IFW***
***KD8RNO***
***KC8EKT***
***KG8FH***
***KE8CVA***
***WD8JWJ***
***WB8NQW***
***N8VNT***
***WD8LEI***
***K8JU (11)***

# Brain Teasers

**1.** What is meant by antenna bandwidth?

**a.)** antenna length divided by the number of elements

**b.)** the frequency range over which the antenna can be expected to perform well

**c.)** the angle between the half-power radiation points

**d.)** the angle formed between two imaginary lines drawn through the ends of the elements.

**2.** What would be the physical length of a typical coaxial transmission line that is electrically one-quarter wavelength long at 14.1 MHz? (velocity factor = 0.66)

**a.)** 20 m

**b.)** 2.33 m

**c.)** 3.51 m

**d.)** 0.25 m

**3.** What is the principal characteristic of a Zener diode?

**a.)** constant current under varying voltage

**b.)** constant voltage under varying current

**c.)** a negative resistance region

**d.)** internal capacitance that varies with applied voltage

# October Contests

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

| | | |
|---|---|---|
| **Oct 5-7** | *1400 to 0200 Z* | 160 m to 10 m |
| **YLRL DX/NA Anniversary 'test** | | **all modes-licensed YL** |
| **Oct 6-7** | *0800 to 0800 Z* | 160 m to 10 m |
| **Oceania DX 'test** | | **SSB** |
| **Oct 6-7** | *1200 to 1159 Z* | 160 m to 10 m |
| **Russian WW Digital 'test** | | **Digital** |
| **Oct 6-7** | *1600 to 2200 Z* | 160 m to 10 m |
| **California QSO Party** | | **all modes** |
| **Oct 7** | *0500 to 2300 Z* | 80 m to 10 m |
| **RSGB DX 'test** | | **CW SSB** |
| **Oct 13-14** | *0300 to 2100 Z* | 160 m to 10 m |
| **Nevada QSO Party** | | **all modes** |
| **Oct 13-14** | *0800 to 0800 Z* | 160 m to 10 m |
| **Oceania DX 'test** | | **CW** |
| **Oct 13-14** | *1600 to 2200 Z* | 160 m to 10 m |
| **Pennsylvania QSO Party** | | **all modes** |
| **Oct 13-14** | *1700 to 0500 Z* | 160 m to 10 m |
| **Arizona QSO Party** | | **all modes** |
| **Oct 13-14** | *1800 to 1800 Z* | 160 m to 10 m |
| **South Dakota QSO Party** | | **all modes** |
| **Oct 15-19** | *1300 to 2359 Z* | 160 m to 10 m |
| **ARRL School Club Roundup** | | **CW SSB** |
| **Oct 20-21** | *1400 to 0200 Z* | 160 m to 10 m |
| **New York QSO Party** | | **all modes** |

# *Walking Foxhunt Has Avid Participants*

The Club's first "walking" foxhunt took place after the breakfast meeting on September 1st at the adjacent QTHs of Bob-WB8NQW and Shawn-KB8QEW.

As reported earlier, the idea was to do something a little bit different from previous hunts, where the hunters would search for a human fox using mobile equipment on 2 meters. The new approach was to place several unmanned beacon transmitters that are controlled by a timing circuit with a CW identifier in fixed positions. Also, to scale things down a bit, a 70 cm operating frequency was chosen. In preparation, a group of enthusiasts met at Bob-WB8NQW's QTH several months ago to build a directional antenna for 440 MHz, Quite a few 6-element Yagis were constructed and tested for the purpose.

The three beacon transmitters consisted of some inexpensive Baofeng HTs that were controlled by a 555-timing circuit to transmit a CW ID sequence every minute or so. The IDer was controlled by a nano-Arduino processor that was built and programed by Steve-W8AN.

The fox hunters convened at about 10:30 am and began the search. After awhile two of the three foxes were located, but it soon became clear that the hunters required somewhat more sophisticated attenuators than what were being used.

The purpose of the exercise is to test operator skills in locating an rf source. Each outing allows the group to identify things that need to be improved and modified so that they can be tried out the next time. Many thanks to the organizers: Bob-WB8NQW, Shawn-KB8QEW, Eric-WD8LEI and Steve-W8AN. A lot of fun was had by all. ■

***Sun—from p. 1***

field may have helped the solar wind penetrate deeper than usual. If so, more nitrogen auroras could be in the offing. The actual equinox is September 22, and a new stream of solar wind is approaching Earth.

The effects on radio propagation are many. First, many hams are able to make contacts off of "aurora scatter", a phenomenon that works exactly like it sounds. The presence of Aurora is a sign that there is a large cloud of ionized gas that will scatter radio waves, particularly at hf frequencies.

The second concern for radio operators is a disruption of the "normal" ionosphere by the ionized solar wind particles. With a strong stream from the Sun, hf radio propagation has been known to have been totally disrupted. The "equinox crack" is a special set of conditions that allows the ionized particles to penetrate further toward the Earth's surface. ■

## WCARC Weekly Net

**Tuesdays at 2100 all year**

**147.18 MHz 67 Hz PL**

**Net Control Roster**

| | |
|---|---|
| *Sep 25* | *WB8NQW* |
| *Oct 2* | *KD8NJW* |
| *Oct 9* | *KD8VWU* |
| *Oct 16* | *KD8NJW* |
| *Oct 23* | *K8OVO* |
| *Oct 30* | *WB8NQW* |

## NEXT MEETING

***Business Meeting***

**Monday,**

**October 8**

**TIME: 7:30/7:00 pm**

**PLACE:**

**Sheriff's Training Room,**
**E. Gypsy Lane Rd. & S. Dunbridge 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***

**discussion of all things digital**

## Net Check Ins

***Sep 18 Traffic: 0***

***WB8NQW (NCS)***
***KE8CVA***
***K8BBK***
***KG8FH***
***KD8NJW***
***WD8JWJ***
***WD8LEI***
***W8PSK***
***KD8RNO (9)***

# *Technician Class Slated*

A six-week class to prepare for the Technician license will be held starting November 1st, on Thursday evenings at 6:30 pm. The location is the BG FabLab in Woodland Mall. The only course material required is the ARRL License Manual-4th edition. This can be obtained from arril.org.

The course will end with a review and VE exam session on December 20th. For further information, contact Bob, N1RB, at:

boughton@bgsu.edu ■

# Working on 630 meters—a New Band

The 630 meter (472 kHz to 479 kHz) band (just below the AM radio band) was opened up for amateur operation last year. There are a number of limitations—primarily that the maximum EIRP (effective isotropic radiated power) be 5 watts, but also that the transmitting antenna is not within 1 km of a power line carrier (PLC) system.

One Club member who is experimenting with the new band is Bruce, AA8HS. He derives a low level signal (1 mW on 472 kHz) from the DRV (Drive) output on his Kenwood TS-590S transceiver, passes it through a K5DNL amplifier, which amplifies the 1 mW signal, and then ships it to a squarer circuit that converts sine waves to square waves in order to drive two switching MOSFETs. The amplifier output passes through a 3-stage low pass filter and then to the matching home brew variometer (see Fig. below), a device that varies mutual inductance. This feeds an inverted-L antenna with multiple radials that is about 160 feet in total length and has a maximum height of 60 feet. The variometer has enough inductance to tune the short-

***Home brew variometer used by AA8HS***

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

***continued---on p. 7***

# October Contests-cont.

| | | |
|---|---|---|
| **Oct 20-21** | *1500 to 1459 Z* | 80 m to 10 m |
| **Worked All Germany 'test** | | **CW SSB** |
| **Oct 21-22** | *1700 to 0100 Z* | 160 m to 10 m |
| **Illinois QSO Party** | | **all modes** |
| **Oct 27-28** | *0000 to 2359 Z* | 160 m to 10 m |
| **CQ WW DX 'test** | | **SSB** |

# October Hamfests

**Oct 13 Northwest Ohio ARC Hamfest** Allen County Fairgrounds, Lima, OH. **web:** http://nwoarc.com

**Oct 28 Massillon ARC Hamfest.** Massillon Boys and Girls Club, Massillon, OH. **web:** http://www.w8np.org

**Oct 28 Utica-Shelby ECA Hamfest.** UFCWA Local 876 Hall, Madison Heights, MI. **web:** http://usecaarc.com

***630 m—from p. 6***

ened antenna with a roller inductor to fine tune the impedance. Below is a list of some JT-9 contacts that Bruce has made:

| | |
|---|---|
| WB4JWM | GA |
| K8KFR | IN |
| WA9CGZ | IL |
| K9BLI | IN |
| K1BZ | MD |
| WA3ETD | VT |
| N8IVE | OH |
| W3XY | MD |

It looks like there is quite a bit of activity on this band. For those Club members who want to try something new, and at the same time get some home brew experience, it sounds like a perfect opportunity.

For some tips on how to proceed, contact Bruce, AA8HS, for more information. His e-mail is:

aa8hs@arrl.net

■

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