CQ CHATTER

NOVEMBER **VOLUME B17 • ISSUE 9**

WOOD COUNTY AMATEUR RADIO CLUB

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

http://wcarc.bgsu.edu

Minutes

WCARC Meeting

October 9, 2017

Bob-N1RB, presiding

Present: Doug-KD8VWU, Terry-KE8CVA, Jim-KD8NJW, Ruth-KC8EKT, Phil-W8PSK, Steve-W8AN, Bob-WB8NQW, Hoot-WB8VUL, Eric-WD8LEI, Lynn-KD8RNO, Steve-K8BBK, Bill-WD8JWJ, Chuck-WD8ICP, Zach-KD8UHO, Bob-N1RB

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

Minutes from the August meeting as printed in September CQ Chatter were approved.

Treasurer's report given by Jim-KD8NJW was also approved.

Old Business:

- September's fox hunt was discussed at some length. Several ideas for future fox hunts were explored. One idea finally gained majority approval. That is to hide multiple low power automatic transmitters on different frequencies in an area – such as a park or fairgrounds - where the hunt can be conducted on foot with groups of 2 - 4 hams working as a team. It could be a timed event with some recognition for the winning team.

- Chuck-WD8ICP moved that the Technical Committee be authorized to spend up to $200.00 to purchase the necessary equipment to conduct the next foxhunt. Doug-KD8VWU seconded the motion and it passed. Several construction parties will be scheduled to assemble the antennas and transmitting equipment.

- Bob-N1RB brought up the repeater transmit site move when the BGSU Administration Bldg. is razed. Bob's contact person at BGSU indicated we probably have at least 2 years before anything happens. The Club informally decided to wait until the move is imminent, but in the meantime do some

continued---on p. 4

Net Check Ins

Oct 10 Traffic: 0

K8OVO (NCS)
KE8CUZ
K8BBK
WD8LEI
KD8RNO
KG8FH
KE8CVA
WD8JWJ
WB8NQW
KD8NJW
W8PSK
K8LL
N8VNT
N1RB
KC8EKT
KD8VWU
WD8ICP (17)

Oct 17 Traffic: 0

N1RB (NCS)
K8BBK
KG8FH
WD8JWJ
WB8NQW
KD8NJW
KD8RNO
KE8CVA
KD8VWU
KC8EKT (10)

Brain Teasers

1. If a current of 2 amps flows through a 50 ohm resistor, what is the voltage across the resistor?

a.) 25 V

b.) 52 V

c.) 100 V

d.) 200 V

2. What are two advantages to using modern data transmission techniques for communications?

a.) very simple and low cost equipment

b.) no parity checking required and high transmission speed

c.) easy for mobile stations to use and no additional cabling required

d.) high transmission speed and communications reliability

3. How long should you make a quarter-wave vertical antenna for 28.450 MHz (to the nearest foot)?

a.) 8 ft

b.) 12 ft

c.) 16 ft

d.) 24 ft

November Contests

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

Nov 4-6	*2100 to 0300 Z*	160 m to10 m
ARRL Sweepstakes		**CW**
Nov 4-5	*1200 to 1200 Z*	160 m to 10 m
Ukrainian DX 'test		**CW/SSB**
Nov 11-12	*0000 to 2359 Z*	80 m to 10 m
WAEurope DX 'test		**RTTY**
Nov 11-12	*0700 to 1300 Z*	160 m to 10 m
OK/OM DX 'test		**CW**
Nov 11-12	*1400 to 0200 Z*	160 m to 6 m
Kentucky QSO Party		**all modes**
Nov 18-19	*1200 to 1200 Z*	80 m to 10 m
LZ (Bulgaria) DX 'test		**CW/SSB**
Nov 18-20	*2100 to 0300 Z*	160 m to 10 m
ARRL Sweepstakes		**SSB**
Nov 25-26	*0000 to 2359 Z*	160 m to 10 m
CQ WW DX 'test		**CW**

November Hamfests

Nov 18-19 Allen County AR Technical Society. **Annual Hamfest and Indiana State Convention.** Allen County War Memorial Coliseum, Ft. Wayne, IN. **web:** **http://www.fortwaynehamfest.com**

Dec 3 L'Anse Creuse ARC. Annual Hamfest. Madison Place, Madison Hts, MI. **web:** **http://www.n8lc.org**

minutes---from p. 1

housekeeping at Offenhauer to free up some floor space and simplify the move when the time comes.

New Business:

- Bob-N1RB has been contacted by the family of a SK that has a complete station of Heathkit equipment they would like to sell. Bob will take a dummy load on site and do some basic testing. The following are for sale: SB-101 transceiver, SB-600 speaker, HD-1416 code oscillator, HD-15 phone patch, HM-15 SWR meter and Alliance dual speed rotor.

- Bob-N1RB is seeking volunteers for a Nominating Committee to select candidates for our election of officers later this year. Please contact Bob if you can serve in this capacity. This is very important duty to serve your Club.

- The venue for the 2018 kickoff banquet was discussed with January 07, 2018 at the French Quarter in Perrysburg selected.

- Phil-W8PSK has been experimenting with Yaesu's implementation of Wires-X in the Fusion digital mode. This feature allows conversations worldwide using the internet to interconnect Fusion repeaters with Wires-X enabled. A few other members have also experimented with Wires-X using repeaters with Wires-X capability in Toledo and Findlay. The Wires-X mode requires the repeater to be in "digital narrow" mode. To implement Wires-X on our Fusion repeater requires a firmware upgrade, a $125 Wires-X router, a computer and an internet connection. Phil has a computer available, the firmware upgrade is available online from Yaesu, and there is an internet connection at the receive site for the APRS machine. After much discussion Terry-KE8CVA moved that the technical committee explore Wires-X, verify that a proper internet port is available, and approved the purchase of the Yaesu Wires-X router. Doug-KD8VWU seconded the motion, and it passed.

Adjournment: Bob-N1RB invited a motion to adjourn. Eric-WD8LEI and Ruth-KC8EKT obliged.

Respectfully submitted:
Bob, WB8NQW ■

Firestorms Reveal Wireless Network Fragility

from e-Week

The fires that ripped through California's wine country moved with deadly speed, trapping people in their houses and in their neighborhoods. In many cases, the only warning victims received was if they happened to see the flames in the distance.

Other residents were able to escape the wind-driven flames if they were able to receive phone calls from neighbors, family or friends.

Emergency service authorities in Napa, Sonoma and Mendocino counties sent out warnings and evacuation orders as quickly as possible. They also sent

continued---on p. 6

WCARC Weekly Net

Tuesdays at 2100 all year

147.18 MHz 67 Hz PL

Net Control Roster

Oct 31	*N1RB*
Nov 7	*W8PSK*
Nov 14	*KD8VWU*
Nov 21	*KD8NJW*
Nov 28	*NM8W*
Dec 5	*K8OVO*
Dec 12	*WB8NQW*

NEXT MEETING

Breakfast Meeting

Saturday, Nov. 4th

TIME: 9:00 am

PLACE:

Frisch's North
N. Main St. and
E. Poe Rd.
Bowling Green, OH

DON'T FORGET!

10 meter Net

meets

Sunday@ 2030

on 28.335 MHz

No Fusion Net until further notice

Repeater being upgraded

Net Check Ins

Oct 24 Traffic: 0

WB8NQW (NCS)
KA8VNG
KE8CVA
WD8LEI
KD8RNO
N1RB
W8PSK
WD8JWJ
K8BBK
KG8FH
KD8VWU (11)

Oct 31 Traffic: 0

N1RB (NCS)
KG8FH
WD8JWJ
WB8NQW
W8PSK
KD8NJW
KA8VNG
KD8VWU (8)

Brain Teaser answers: (T) 1-c, 2-d, 3-a

firestorms---from p. 4

police and fire units into threatened neighborhoods with sirens blaring and emergency lights flashing to alert residents to the danger.

Unfortunately, many people out of hearing of those sirens never received evacuation orders or phone calls because the cellular networks in the devastated areas were already out of commission.

Local authorities say that the speed of the fires, coupled with the lack of warnings contributed to the loss of 28 people who are reported to have died as of this writing. Authorities also believe that some of the hundreds of people reported missing have died, but the scale of the destruction, the remoteness of some of the burned areas along with cell communications service outages means there is often no way of ascertaining who is actually missing.

While there's likely nothing that could be done to prevent the fires that are still burning in the region, the fragile communications infrastructure certainly contributed to the loss of life.

Worse, the same communications infrastructure that supports cellular service also supports public safety communications in many communities. This means that local authorities and community groups are relying on ham radio operators to provide critical communications. Currently, the Sacramento Bee is reporting that ham operators are providing the only communications with hospitals in some areas.

Unfortunately, this problem with a fragile wireless infrastructure isn't confined to Northern California. It's evident in other areas where disasters have taken place, such as when Hurricane Maria hit Puerto Rico in late September. There, two-thirds of the cell sites are still out.

But it doesn't have to be that way. The communications infrastructure in the U.S. can be made more resilient, either through forward-thinking design or through policies that create redundancy in the networks. For example, when the slow moving Hurricane Harvey inundated the Houston metropolitan area with

continued---on p. 7

firestorms—from p. 6

more than 50 inches of rain, only 5 percent of Houston's cell sites went out, according to Federal Communications Commission Chairman Ajit Pai.

During a speech at the Ronald Reagan Library in Simi Valley, Calif. on Oct. 10, Pai said that the difference was that cellular operators in Houston had replaced most of their copper infrastructure with fiber, which was much less susceptible to damage from flooding. ■

Scientists in Alaska Attempt to Produce Artificial Aurora

from IEEE Spectrum

Sometimes, experiments don't work out as planned.

In 2015, the U.S. military handed over control of the HAARP facility to the University of Alaska Fairbanks

In late September, Christopher Fallen and technicians at the **High Frequency Active Auroral Research Program** (HAARP) near Gakona, Alaska, switched on a giant array of 180 antennas. They were hoping to produce radio-induced airglow, also known as **artificial aurora**, as a way to better understand the mechanics of natural aurora.

Such airglow would be difficult to see with the naked eye, so Fallen had set up two low-light video cameras to capture it. And **he tweeted** his plans, in the off chance that someone else might catch a glimpse. After all, some of the most impressive artificial aurora displays to date have been **produced at HAARP**.

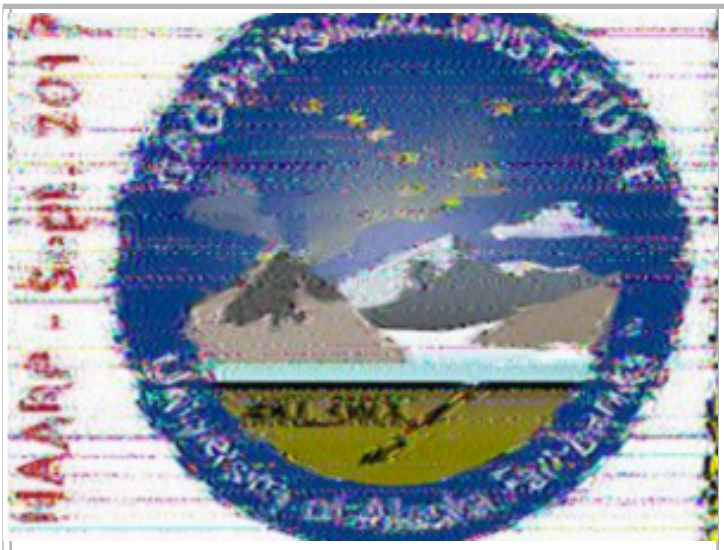
But the sky was too cloudy. And by the time it was dark enough, the ionosphere had deteriorated too much, with relatively few electrons per cubic centimeter. Fallen wasn't able to generate any airglow during four days of experiments.

But not all was lost. He had also embedded images into the powerful radio wave that HAARP uses to heat a patch of the ionosphere, and alerted amateur radio enthusiasts through Twitter. As the experiment ran, his feed began to light up with tweets from listeners who were sending the images back to him.

They had used slow-scan TV, which reproduces images based on patterns in audio signals, to decode the images. Fallen, an assistant professor at the University of Alaska Fairbanks' Geophysical Institute, had transmitted two UAF logos, a cat photo, and a QR code granting the recipient 0.001 Bitcoin.

Messages were returned from Pueblo, Colo., and Victoria, British Columbia. The resolution wasn't high enough for anyone to claim the Bitcoin, but the cat was easy enough to make out. Given that HAARP's

continued---on p. 8



A UAF logo sent with HAARP received by an amateur radio operator in Victoria, B.C.

antennas point directly up at the sky instead of out toward the horizon, Fallen was pleased with the results. "As powerful as HAARP is, it's just a big radio," he says.

It's actually a **giant phased array radio transmitter** capable of sending 3.6 megawatts of energy into the ionosphere. **Running an experiment there** costs about US $5,000 and burns 600 gallons (roughly 2300 liters) of fuel per hour.

Jeff Dumps, an amateur radio enthusiast from Fairbanks, recently paid $1,200 to run a 15-minute experiment on HAARP. He was trying to simulate the **Luxembourg effect**, or cross-modulation that can occur between two signals as they ricochet through the atmosphere. To do so, he transmitted the preamble to the U.S. Declaration of Independence and his own guitar rendition of the Star-Spangled Banner.

Dumps has visited HAARP with Fallen, and marvels at its size. "The wind kind of gusts through the antenna array so you get this weird howling," he says. "It's kind of ominous."

The facility was designed to send high-frequency radio waves into the **ionosphere**, where radiation from the sun and distant galaxies mixes with the Earth's atmosphere and can knock electrons out of whack. These electrons collide with oxygen and nitrogen in the atmosphere, and prompt those molecules to release photons that produce the red and green light seen in aurora.

The mechanisms by which space radiation disrupts these electrons is not well understood. In his experiment, Fallen had wanted to cycle through three frequencies—2.8 megahertz, 2.82 MHz, and 2.84 MHz—to see which produced the most vivid fake aurora. This, he thought, might provide a clue to the underlying physics. He also wanted to test two different types of polarization—or the direction the radio wave was oriented—at 2.8 megahertz, to see if polarization made any difference in the aurora that was produced.

Fallen's next chance to answer these questions will be in early spring, when HAARP fires up for another research campaign; it only runs two a year due to staffing and funding constraints.

Heating the ionosphere directly allows scientists to conduct controlled experiments, which is a rarity in the field of atmospheric physics. "Almost never in space science do we get to do active experiments. We almost always just sit here and wait for the sun to deposit energy and make things happen," says **John Hughes**, a radar physicist at Embry-Riddle Aeronautical University who used to work at HAARP. "HAARP gives us the ability to poke it a little bit and gives us a new way to understand how this whole system works." ■

FOR SALE

Elecraft KX3 transceiver and Hardrock 50 W Amp. They go together. KX3 has the ATU, filter board, 2m module, internal bat charger/clock w/ batteries, microphone.

Amp has ATU, QSK. (qsk not installed). Many extra cables & plugs. Includes aluminum stand that will hold KX3 and PX3.
All manuals included.
Price $1300.
Contact:
Bill Wilkins, WD8JWJ, **wd8jwj@amplex.net**

FOR SALE

Heathkit SB-101 transceiver with power supply/speaker (SB-600/ HP-23A)—-receiver works, but no excitation.
HD-1416 Code Oscillator with key
HD-15 Hybrid Phone Patch
HM-15 Reflected Power Meter

Asking $200 OBO
Contact:
Betsy Boyle (419) 392-6860 **betsyboylebg@gmail.com**

WOOD COUNTY ARC
P.O.BOX 534
BOWLING GREEN, OH
43402