CQ CHATTER

DECEMBER 2015 VOLUME B15 •ISSUE 10

WOOD COUNTY AMATEUR RADIO CLUB

WCARC Digital Repeater on Air

The recently purchased Yaesu Fusion digital/analog repeater was placed on the air in mid-November. The repeater operates on 442.125 MHz + with a tone/tone squelch frequency of 67 Hz. The system works in such a way that either a regular FM (analog) or a C4FM (digital) signal can be repeated. Because the system is so versatile, there are certain requirements that all users should adhere to obtain maximum flexibility.

First, if a regular FM station opens the squelch on the input, the output automatically also changes to FM. If C4FM stations are receiving the repeater output, and they have their home Fusion rigs set to automatic mode, their transceivers will switch to FM. In this way, stations without digital capability can contact and converse with any other Fusion-equipped station (or any other FM station) using the FM analog mode.

On the other hand, if two C4FM (digital) stations are in QSO, there will be no indication to an analog listener except perhaps for a buzzing sound at the output as the digital bits go zipping back and forth.

One way for an FM station to break into such a QSO is to simply transmit during a break in the action. The repeater will automatically switch its output to FM, and the digital stations will also simultane-

continued---on p.6

December Program to Cover Microwave Techniques

The business meeting on Monday, December 14th, will be followed by a Power Point presentation on microwave frequency ranges, techniques, and power levels. The program will be presented by Bruce, AA8HS. Be sure to make plans to attend what will surely be an extremely interesting program. ■

NET CHECK INS

Nov 3 Traffic: 0

W8PSK	***(NCS)***
KD8NJW	
KD8RNO	
WD8JWJ	
WD8LEI	
WB8NQW	
AA8HS	
KD8VWU	
N1RB	
K8OVO	
K8BBK	
N8YAE	***(12)***

Nov 10 Traffic: 0

KD8NJW	***(NCS)***
NM8W	
WB8NQW	
K8BBK	
WD8JWJ	
K8OVO	
W8PSK	
WD8LEI	
KD8VWU	
K8JU	
K3RC	
N1RB	
KD8WZK	
KC8NKC	
AA8HS	***(15)***

Nov 17 Traffic: 0

KD8VWU	***(NCS)***
KD8NJW	
KD8WZK/P	
K8OVO	
WD8LEI	
N8VNT	

cont-p6

BRAIN TEASERS

1. What is the approximate length, in inches, of a quarter wavelength vertical antenna for 147.78 MHz (input to K8TIH)?

a.) 112 in

b.) 50 in

c.) 20 in

d.) 12 in

2. How is an ammeter usually connected to a circuit?

a.) in series with the circuit

b.) in parallel with the circuit

c.) in quadrature with the circuit

d.) in phase with the circuit

3. What amateur band are you using if you are transmitting on 223.50 MHz?

a.) 15 m

b.) 10 m

c.) 2 m

d.) 1.25 m

December Contests

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

Dec 4-6	*2200 to 1600 Z*	160 m
ARRL 160 m 'test		**CW**
Dec 6	*0000 to 2359 Z*	10 m
10 m RTTY 'test		**RTTY**
Dec 12-13	*0000 to 2359 Z*	10 m
ARRL 10 m 'test		**CW-SSB**
Dec 19	*0000 to 2359 Z*	80 m to 10 m
OK DX RTTY 'test		**RTTY**
Dec 20	*1800 to 2359 Z*	80 m to 6 m
ARRL Rookie Roundup		**CW**
Dec 19-20	*1400 to 1400 Z*	160 m to 10 m
Croatian CW 'test		**CW**
Dec 19	*20000 to 2359 Z*	160 m to 10 m
RAC (Canada) Winter 'test		**CW-SSB**
Jan 1	*0000 to 2359 Z*	160 m to 10 m
Straight Key Night		**CW**

December Hamfests

Dec 5 Fulton County ARC. Annual Hamfest. Delta American Legion Post #373, Delta, OH.
web: **http://k8bxq.org/hamfest**

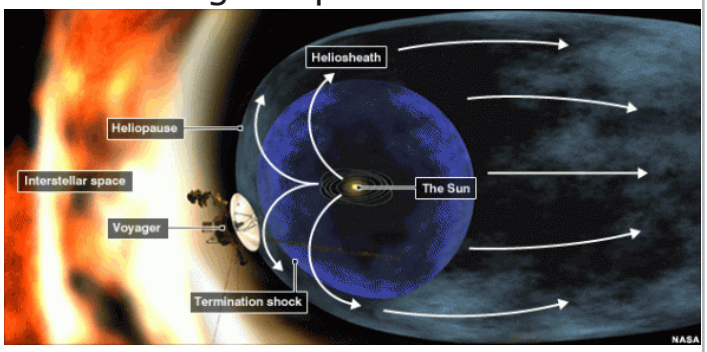
NASA seeks programmer fluent in 60-year-old languages to work on Voyager

from Geek.com

After decades with the Voyager program, NASA engineer Larry Zottarelli is retiring. That means there's a job opening at the storied Jet Propulsion Laboratory, but it won't be the right fit for just any engineer. Applicants should have a can-do attitude, good communication skills, and extensive knowledge of 60-year-old programming languages.

We're talking about the Voyager 1 and 2 spacecraft here, which were launched in the 1970s. That's before the personal computer revolution sent programming languages into overdrive. There was no C, Java, or Python in those days. Instead, Voyager runs on assembly language (about as low level coding as you can get), as well as higher level languages including Fortran and COBOL, which were created in the late 1950s. You need to understand these archaic programming languages to work on the Voyager spacecrafts as they leave the solar system.

Both COBOL and Fortran are still in use today, but they aren't exactly popular choices with the younger generations of programmers. They sit at positions 21 and 22 according to the TIOBE index. Assembly language also isn't something many younger developers would focus on today unless specifically asked to as part of their job, and even if they did, assembly language is different for every computer architecture with each having its quirks.



The core software running the Voyager probes was last overhauled in 1990, shortly after the Neptune flyby. JPL introduced a number of looping protocols that lets the spacecraft operate more or less autonomously. NASA continues to send up new sequences every three months or so, but it's getting harder to communicate with the Voyager probes 12 billion miles away. Only the massive Canberra antenna of

continued---on p.6

WCARC Weekly Net

Tuesdays at

2100 EDST/EST

147.18 MHz 67 Hz PL

Net Control Roster

Dec 8	WB8NQW
Dec 15	KD8NJW
Dec 22	KD8VWU
Dec 29	N1RB
Jan 5	K8OVO
Jan 12	WB8NQW

NEXT MEETING

Business Meeting

Monday, December 14

TIME: 7:00 EB/7:30 pm

PLACE: Sheriff's Training Room

Program: Microwaves by Bruce, AA8HS

E. Gypsy Lane Rd. & S. Dunbridge Rd.,

DON'T FORGET!

10 meter informal net meets Sunday @ 2030 EST/EDST on 28.335 MHz

It's time to renew-

dues for 2014

payable to:

WCARC

P.O. Box 534

NET CHECK INS

Nov 17 cont from p2

WB8NQW
KC8EKT
N1RB
W8PSK
N8YAE
W8MSW
AA8HS (13)

Nov 24 Traffic: 0

N1RB (NCS)
WD8JWJ
K8BBK
W8PSK
KC8EKT
WB8NQW
KD8RNO
WD8LEI
KD8NJW
KD8VWU
K8OVO
N8YAE (12)

Dec 1 Traffic: 0

K8OVO (NCS)
K8JU
KD8WZK
K8BBK
W8PSK
WD8JWJ
KD8RNO
KG8FH
WD8LEI
WB8NQW
AA8HS
K8LL
N1RB
KD8VWU
WD8ICP (15)

NASA-from p. 4

the Deep Space Network is able to send data to the Voyager probes these days.

Whoever takes over the programming duties on Voyager will have to work on tightening up its energy usage. Both spacecrafts are getting old, but have enough power to run for at least another decade. After that, it will depend on what systems can be optimized and what can be shut down to save power. JPL managers aren't expecting a young college grad to show up with intimate knowledge of programming languages from 60 years ago, but finding an engineer in their 50s (rather than 70s) who understands assembly languages would be great. ■

digital-from p. 1

ously switch to FM as long as they are using automatic mode selection.

After some experimentation, the Technical Committee has determined that this is the most flexible set-up for the repeater, and so will best serve the Club members who want to use it.

Thanks to Phil-W8PSK, Jim-K8JU, Eric-WD8LEI, Bill-WD8JWJ, and Bob-WB8NQW for the hard work and considerable effort it took to install the repeater, tune the duplexers, and erect the new antenna for the operation.

Obtaining this repeater and putting on the air serves as a memorial to Club member Brett Luna-KC8UMN (SK), who bequeathed his personally owned 70 cm repeater on this frequency pair to WCARC. Unfortunately it was not possible to put Brett's original equipment on the air with any reasonable footprint. So, when the opportunity to obtain a new digital repeater arose, it was only natural for the Club to use Brett's old frequency pair and to dedicate it to his memory. All operators are encouraged to try out the new repeater and help evaluate its performance. ■

New Antennas Erected

Over the course of late October to mid-November, members of the Technical Committee have been busy in replacing two of our repeater antenna systems on the roof of Offenhauer West.

The old set-up consisted of a two-meter vertical on the North tower which handled the APRS traffic on 144.39 MHz, and a dual band vertical on the East tower which handled the input of the K8TIH FM repeaters on 147.18 MHz + and 444.475 MHz +.

In anticipation of the need to move the transmit site to Offenhauer West, as well as the introduction of the new Fusion repeater, it was determined that new antennas should be erected on both towers. Two Diamond model X510 dual band verticals were purchased and installed on each tower. They are both connected with new high-quality coax lines that are especially low loss at 70 cm. The present set-up consists of: 147.18 MHz/444.475 MHz repeaters on the East antenna (receive only at present, but transmit and receive when transmitters are moved) and 144.39 MHz/442.125 MHz on the North antenna (transmit and receive in both cases). Special thanks to Phil-W8PSK, who did the lion's share of the tower climbing and vertical installation work. ■

KICK-OFF BANQUET PLANS

Due to the unavailability of Nazareth Hall this year, the Club voted to hold the kick-off banquet at the French Quarter in Perrysburg this year.

The Club has reservations at J. Patrick's for 12 noon on Sunday, January 10 for the Sunday Brunch. Base prices are as follows (20% gratuity will be added):

Buffet - $15
Seniors - $14
Children 4-12 - $9
Under 3 - Free
---Separate checks. ■

NORTHWEST OHIO REGIONAL COMMUNICATIONS (NORC)

In the 18 county Northwest Ohio region, there is an amateur radio system called "NORC" (Northwest Ohio Regional Communications). The goal of NORC is to have an 18 county regional emergency communications system that basically <u>does not</u> require any outside infrastructure, primarily as a backup to existing emergency communications systems. The system is tested on the 1st Saturday at 11:00 AM on 7.200 (+/-) MHz.

Check-ins into the net from amateurs at the 18 (NORC) County EOC's, adjacent county EOC's are encouraged, as well as from all interested amateurs at other locations. ■

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

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

VE LICENSE TESTING

Date: Thursday, Dec. 10, 2015

Time: 7:00pm

Place: Woodland Mall in Bowling Green at the BiG FabLab (East of theater)

Walk-ins accepted--bring $15 and photo ID

contact: N1RB (boughton@bgsu.edu)