



Yavapai Signal

The Yavapai Amateur Radio Club – Prescott, Arizona – DM-34 – Volume 34 – No. 3 – March 2019

Upcoming Club Events				
Event	Date	Time	Place	Contact / Info:
General Meeting	TH 03/07/19	1900 MST 7 p.m.	Prescott Rodeo Grounds	Club Website
YARC Breakfast	TH 03/21/19	0800 MST 8 a.m.	BackBurner Restaurant, Prescott Valley	Don WB7TPH or Jeff WB7RFY
General Meeting Programs — See page 3.				
Public Service Event Communications — See page 4.				
License Testing — See page 5.				

YARC:	Badges	Patches	Shirts
Features:	Name & Call	Club Name & Logo	With or Without Name & Call
Contact Person(s):	Jim Fortney K6IYK	Jim Fortney K6IYK	Pete Morrison K6VVR
Cost:	\$7.00 each	\$3.00 each	Without Name & Call \$20.00 — With Name & Call \$24.00 each

Club Website Registration
In order to receive the <u>Signal</u> (the club's official newsletter), you must be a member of the club. Make sure your email is correct by logging into our website (www.w7yrc.org), then clicking on the members tab and viewing your profile.

Welcome to the Yavapai Amateur Radio Club

The Yavapai Amateur Radio Club (YARC) is an ARRL affiliate Special Service Club. The club participates in many activities in the quad-city (Prescott, Prescott Valley, Chino Valley, and Dewey-Humboldt) area by providing communications for local events, emergency communications, and promotion of the hobby throughout the community.

Membership in YARC is open to any interested amateur or non-amateur alike. Dues are \$20.00 per year (full-time students \$15). YARC general meetings are at 1900 MST on the first Thursday of every month at the Danny Freeman Building, Prescott Rodeo Grounds, 840 Rodeo Drive in Prescott.

www.w7yrc.org

YAVAPAI AMATEUR RADIO CLUB – PO BOX 11994 – PRESCOTT AZ 86304-1994

Club Nets

Band	Mode	Frequency	PL	Night	Time
2M	FM	147.260 MHz	+103.5 Hz	Wednesday	1900 MST
2M	SSB (USB)	144.250 MHz	N/A	Wednesday	2000 MST
10M	SSB (USB)	28.440 MHz +/- QRM	N/A	Thursday	2000 MST
¾M	FM	447.650 MHz	-100.0 Hz	Saturday	0900 MST

Yavapai County ARES/RACES Nets

2M	FM	147.260 MHz	+103.5 Hz	Monday	1830 MST
2M	FM	145.290 MHz	-127.3 Hz	Monday	1900 M

Club Repeaters

2M	FM	146.880 MHz	-100.0 Hz	Open Use 24/7	Open Use 24/7
¾M	FM	447.650 MHz	-100.0 Hz	Open Use 24/7	Open Use 24/7

Submission Deadline for the Yavapai Signal

from editor Loren Singh, AE7CG

The usual deadline for submission of articles and photos to appear in the Yavapai Signal is the 18th calendar day of each month. That gives me time to edit and format submissions, and to have the newsletter available for distribution to the club membership by the 20th calendar day of each month. The aim is to have the newsletter in the hands of club members approximately 10 days or so before the holding of the general meetings on the first Thursday of each month.

ae7cg@arrl.net

Share Your Surplus Items

Bring any ham related surplus items that you no longer need to the next club meeting. There will be a table at the meeting where your items can be placed. Let your fellow club member take those things that they want. The table will be available at each monthly meeting.

Canned Food Donations

Bring your non-perishable food items to the monthly club meetings and Terry Pemberton KB7TRE will take them to the local food bank. Give your bagged items to Terry.

Meeting Minutes

By decision of the board of directors, minutes of the board and general meeting minutes will no longer appear in the Yavapai Signal. They are posted online at the club's website:

www.w7yrc.org → [Members](#) → [Login](#) → [Reports](#)

|
→ [Board Minutes](#)
→ [Club Minutes](#)

YARC General Meeting Programs, 2019

by Joe Thomas, KG6IDN

Month	Presenter	Subject / Details
March	Tony Merriman, NOAA Flagstaff	Summer Warnings
April	Pete Morrison K6VVR	Tape Measure Yagi Antenna Build* — Fox Hunt
May	Richard Paquette W7RAP, ARRL	Section Manager's Recap
June	Terry Schultheiss KG7BAM	Radio Go-Kits, Summer Preparedness
July	Special Interest Group (SIG)	Need volunteers
August	Special Interest Group (SIG)	Need volunteers
September	Special Interest Group (SIG)	Need volunteers

***Note:** We will need a count of attendees by the time of the April general meeting. There will be a charge of \$15.00 for materials.

Local Amateur Radio Clubs Seek Food Donations for Furloughed Employees at the Grand Canyon

January 27, 2019 — prescottnews.com

Members of the Verde Valley Amateur Radio Association (VVARA) and the Yavapai Amateur Radio Club (YARC) are seeking donations of food for the approximately two hundred furloughed federal employees living at the Grand Canyon who have now missed their second paychecks. Approximately 300 pounds of meat products and canned goods were donated last week by Rudy Salazar at the Chino Valley Food Bank and delivered to the Grand Canyon by Bob Rosevear WB7RRQ and Bob Thompson KC8BOB. Several shipments from the Northern Arizona Food Bank and the Coconino Amateur Radio Club in Flagstaff were previously delivered to the Canyon.

The latest development in the effort to help the Grand Canyon employees comes thanks to Ted Hartson, WA8ULG of Parks, Arizona and Mr. Kelly Mortenson of St. Vincent de Paul. Kelly has received approval for a donation of 1500-2000 pounds of mostly canned food to be delivered Monday, January 28th. The need at the Canyon will not end immediately when the shutdown is resolved as it will take at least two weeks for things to settle back to normal.

New Members

The following new YARC members joined at the February 7, 2019 general meeting. Please introduce yourself to them and make them feel welcome:

John Crusing K6JRC

Jerry Ferguson NH6AF

March General Meeting Grand Prize Raffle Ticket Drawing

We will be selling 2019 Prescott Hamfest at ERAU Grand Prize Raffle Tickets at the March 7, 2019 YARC general meeting. Anyone who purchases at least \$10 of raffle tickets will have their name entered for a drawing for 20 grand prize raffle tickets. Your name and call will be entered in the drawing for each \$10 worth of tickets that you purchase for that month. Bob Stutey KI7IPI was the winner of the ticket drawing at the February 7, 2019 general meeting.

The ticket drawing will take place after the meeting break. We are doing this ticket drawing for tickets purchased during the month prior to the meeting or at the meeting. We will be doing this each month through the May 2, 2019 YARC general meeting. Tickets are \$1 each or 12 for \$10. Go to <http://hamfest.w7yrc.org/prizes/> for a list of the grand prizes. You can also purchase grand prize raffle tickets online using PayPal or a credit card by going to: <http://hamfest.w7yrc.org/prizes/> .

The grand prize drawings will be held on Saturday, June 1, 2019 beginning at 1500 MST (3 p.m.) at the Prescott Hamfest at ERAU. You do not have to be present to win the grand prizes.

Public Service Event Communications

We are now accepting volunteer sign-ups for the following events:

- Whiskey Basin Trail Run (Prescott Circle Trail) – April 13, 2013, Contact: Frank Bender (k8fb@w7yrc.org)
- Whiskey Off Road Bike Event – April 26, 27, and 28, 2019, Contact: Frank Bender (k8fb@w7yrc.org)
- Whiskey Row Marathon – May 4, 2019, Contact: John Broughton WB9VGJ (wb9vgj@arrl.net)
- Chino Grinder – May 4, 2019, Contact: Bob Thompson KC8BOB (bobnstar@cableone.net)
- Groom Creek Mountain Mayhem – May 18, 2019, Contact Dottie Akers WF7DS (dottie.akers@gmail.com)

A special thank you to everyone who has volunteered for one of these events. Your participation is essential to the success of our public service events and is greatly appreciated.

ARES/RACES is providing the MARC communications vehicle and a net control operator for these (except the Chino Grinder because of a conflict with the Whiskey Row Marathon) events.

Public service events are a major focus of our club's activities. Come out, test your emergency preparedness, improve your operating skills, and assist your community.

Don't worry if you are inexperienced. We will team you up with someone who can show you the ropes. You don't have to be a YARC member to participate. If you wish to sign up for one of these events, contact the person indicated above or Frank Bender K8FB (k8fb@w7yrc.org).

You can find these and other upcoming public service events on the club web site at <http://www.w7yrc.org/public-service-events/> .

National Firefighters Day — May 4, 2019

Mark your calendars! We are considering/planning a one day special N7GMH operation at the W7YRC (our club station) marking National Firefighters day on May 4. Details are yet to be worked out, but the operating would likely be from 0830 MST until the bands die or 1700 MST, whichever comes first. Contact Doug, KV8TD@arrl.net for more information if you would like to operate. Aside from the memorial aspects, it will be a chance for new hams to get some contacts in a non-contest environment.

License Testing
by Don Bauer, WB7TPH

The next scheduled license test is **Saturday, March 16, 2019**. The time is 0900 MST (9:00 a.m.) at the Jeep Posse Building. At our January 19 test session, we had six candidates: three new Generals and two new Technicians.

Upcoming License Testing

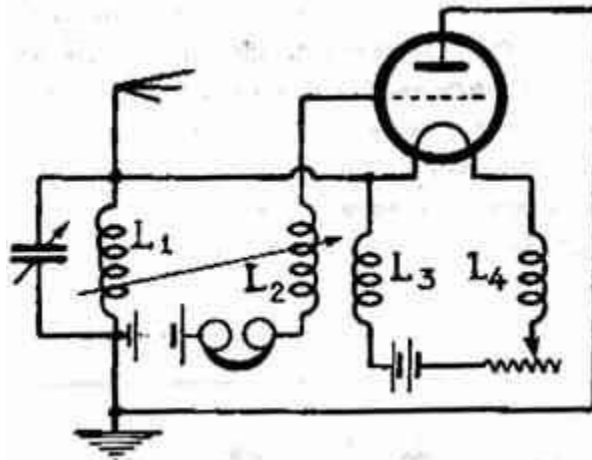
Date	City	Location	Time	Sponsor	Contact	Walk-in
03/07/19	Prescott Valley	Trinity Lutheran Church, 3950 N. Valorie Dr.	1830 MST (6:30 p.m.)	PV Ham Study Group	Jim Scherfling 928.632.2050	Yes
03/16/19	Prescott	Jeep Posse Building	0900 MST (9:00 a.m.)	YARC	Don Bauer 928.775.4690	Yes
05/02/19	Prescott Valley	Trinity Lutheran Church, 3950 N. Valorie Dr.	1830 MST (6:30 p.m.)	PV Ham Study Group	Jim Scherfling 928.632.2050	Yes
05/18/19	Prescott	Jeep Posse Building	0900 MST (9:00 a.m.)	YARC	Don Bauer 928.775.4690	Yes
06/01/19	Prescott	ERAU	0900 MST (9:00 a.m.)	Prescott Hamfest	Don Bauer 928.775.4690	Yes

Yuma Hamfest — February 15–16, 2019
by Rex Mauldin, N7NGM

Another great time was had by many. The weather was rather windy but that did not stop people from attending. I found out afterwards that vendors were up to 47 from 36 of last year. Another good thing that took place a few days before the event was the installation of the 146.84 MHz (PL 88.5) repeater on the fairgrounds. I had attended local meetings of the Yuma ham club where it was discussed that the repeater would be relocated from the foothills to the east of Yuma to the fairgrounds itself. Unless the event is moved in the future, this repeater will be available as a talk-in for anyone going to future events.

Another item that was pointed out was that this is the first time in at least a long time, that HRO Phoenix had a booth set up at the event. I was very pleased to see a wide variety of vendors at the event along with many tailgaters selling their items. In my case, I met up with a friend who had helped me set up my Allstar node. I am thinking of sharing this with the club sometime when I am in the area as I think it would make a great asset to the club repeaters.

My plan now is to depart from Yuma and head on to Scottsdale for the ham event there on the 16th of which I plan to give a short report on. After that will be DeVry and then the ham event in Prescott starting on May 31st.



K9SOU amateur radio operators are three-time world champions

by Brittani Howell

www.hoosiertimes.com

Once a week, the students of Bloomington South's Amateur Radio Club head up to the school's penthouse and reach out to the world. "Kilo-Nine-Sierra-Oscar-Uniform, CQ, CQ," they call onto the airwaves, issuing an open invitation to other amateur radio operators to get in touch with them. Using a rotor and antenna to direct their signal and an amplifier to boost their range, the ARC members scroll through frequencies transmitting their call sign: K9SOU.

The club's work on the airwaves is paying off. On Jan. 1, the team received official notification that they'd won first place in the high school division of the American Radio Relay League School Club Roundup competition — for the third time in a row. In the roundup, which challenges amateur radio clubs to communicate with as many call signs as possible, the three current members of South's amateur radio club made 746 contacts, reaching each U.S. state and 33 countries, including Canada and as far away as Algeria, Bosnia, the Canary Islands, Russia, Namibia, Svalbard and Portugal.

"We try to talk to as many other schools as possible," said Neil Rapp, the club's sponsor. "That's kind of the intent of the contest, is to get school clubs around the world on the air at the same time, so the kids can talk to other kids." They talked to 44 schools in this year's competition, but they don't limit themselves to schools. "We also just try to contact anybody and everybody that's on the ham radio, and try to cram in as many as we possibly can in that time."

The club has had a few dozen members at a time. This year, after many older members graduated, the club is down to three members: Trevor Cutshall, Zach Kasper and Adam Terry. Certainly the club's small size hasn't hurt its world standing, but Rapp would still like to promote interest in the group. Ham radio operation brings into play several fields of science, not to mention geography and foreign language knowledge.

"There's all kinds of chemistry and physics there with how the radio waves work, how they bounce off the atmosphere, what causes interference on the radio and things like that," Rapp said. "There's a lot of connections to a lot of school subjects. This just reinforces what they're learning."

It's also a useful skill. During natural disasters or failures of cell towers, ham radio operators step in to provide an alternative means of communication.

"It has the potential of being life-saving in an emergency situation," said Michael Bélanger [W1DGL], a ham radio operator from Prescott, Arizona. Bélanger was on the air one recent Monday as Terry scanned the frequencies. After chatting with Terry for a few moments, Bélanger agreed to be interviewed for the story. "If people don't have power and whatnot, we can still operate our radios on battery power, or solar, or a combination of the above when necessary." Depending on atmospheric conditions, they can broadcast their signals worldwide. "There's not too many public service agencies that can do that," Bélanger said.

Bélanger has never had to step in for an emergency situation. Neither have Rapp or the members of South's amateur radio club, though they have assisted with community events such as the Hilly Hundred bike race in the fall. They might never need to use their radio skills during a crisis, but practicing ensures that if the need does arise, they'll be able to help.

"If a person can't practice their craft, they're not going to know how to use it in an emergency," Bélanger said

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Bob WB6ODR



Smaller TX mounted in log

February 2019 Foxhunt
by Bob Smith, WB6ODR

The T-Hunt today (Sunday, February 10, 2019) was full of twists and turns all the way through. First the primary transmitter stopped working shortly after Bob WB6ODR announced the hunt was on. He tried 2 other antennas but they did not help the problem. Next the secondary transmitter was tried and used as a primary but on a different frequency. The teams seemed to hear it and left the starting point some 30 minutes after the official start time of 1300 hours. They in fact got under way at 1337 hours.

Almost an hour later Pete K6VVR and Larry KG7TTD and his son Lance pulled in beside Bob's car at the hide location. For some reason neither Pete nor Larry could see Bob sitting in the back seat of his car, good window tint perhaps. After they were sure it was Bob's car, they started looking around but Larry noticed some footprints in the dirt going up a small hill.

After 10 or 15 minutes, he came back and turned just a little bit to see where the Fox was tied to a piece of PVC in the ground. Pete climbed up the hill and verified that was the fox. That is when Bob emerged from the car, to their surprise, and the micro foxes were chased down. Car 2 decided after a couple of hours of chasing the signal they were in need of some coffee and did not report a time.

Teams were: 1) Pete K6VVR Driver, Larry KG7TTD Navigator and Finder, Lance alone for the ride and some outside air; and 2) Jeff WB7RFY Driver and Gary K6JXM antenna handler and support.

Fox location:
34° 34.974N
112° 26.0820W





W7YRC 2M FM Net — 147.260 MHz, PL +103.5 Hz — Wed., 1900 MST
Note: NCS = Net Control Station

Call	Name	01/23/19	01/30/19	02/06/19	02/13/19
AE7CG	Loren	NCS	NCS	NCS	NCS
K6VVR	Pete	x	x	x	x
KA5DWI	Art	x	x	x	x
KF7FPD	Jerry	x	x	x	x
KF7INF	Dennis			x	x
KF7PQV	Dan			x	x
KG6AY	Art	x		x	x
W7HAM	Ralph	x	x	x	x
WA6AQK	Ken	x	x	x	
WN7E	Tom	x	x	x	x
KG7EWD	Patrick	x			x
NO1D	Doug	x	x		x
KI7LXI	Sheila	x	x		x
KI7LWU	Tim	x	x	x	
KI7LWZ	Mike			x	
K7LMJ	Mike	x	x	x	x
W7PVA	Bill		x	x	
KJ7WED	Bob		x	x	x
N7IEP	Mike			x	
KK6PTO	John		x	x	x
K5RDB	Rick	x			
K6PSR	Tony			x	

Flag Day with FT8

by Bill Frantz, AE6JV — West Valley Amateur Radio Association

Abstract

Recently a community of over 20,000 users did a conversion between release 1 and release 2 of a amateur radio digital communications protocol called FT8. The old version of the protocol was not compatible with the new version, resulting in a "flag day" event for users. However, the conversion was rapid and proceeded smoothly. Lessons from this conversion should be useful for other software projects.

Introduction

The new FT8 digital transmission mode has taken the amateur radio world by storm. Adoption has been overwhelmingly rapid, going from nothing at its first release in July 2017 to the most popular mode for many uses in December 2018.

FT8 is the invention of Steven Franke, K9AN, and Joe Taylor, K1JT. (Joe won the Nobel Prize in Physics laureate for his discovery with Russell Hulse of a "new type of pulsar, a discovery that has opened up new possibilities for the study of gravitation." [1]) It is a "weak signal" mode using 50 Hz bandwidth for each signal, and can decode stations that are 24 dB below the voice signal bandwidth noise level.

It is an evolving protocol and has recently been through a major change, from 75 bit messages to 77 bit messages. When you make a major change in a computer protocol, and indeed, FT8 is a computer protocol, there are two ways to introduce the change. (1) You can code the new protocol to inter-operate with the old protocol, or (2) you can have a "Flag Day" where everyone changes to the new protocol at the same time. (A "flag day" is when everyone has to adopt the new protocol at about the same time or lose connection with those who have adopted it.)

Historically, computer engineers have avoided flag days like the plague. Getting everyone to change at the same time is almost impossible, and it is easier to design inter-operation. The FT8 implementors made the other choice; to have a flag day. It is interesting examine why they made that choice and how they succeeded with that choice....

Operations are usually a lot more pleasant when everyone is running the same version of a protocol. Keeping the community of users together has a significant long-term value.

Inter-operation logic tends to be buggy, and those problems "just go away" with a flag day. A flag day also allows a development team to concentrate on more valuable tasks.

Also, with only 77 bits in a message, spending a bit or several on a message format ID is very expensive. Considering that it takes 15 seconds to send each of these messages, and another 15 seconds to receive the reply, every bit is precious.

Another consideration is that the old and new formats can coexist operating on different frequencies. They just can't talk to each other. People who haven't converted can still communicate with others who haven't converted, somewhat easing the need for everyone to change "at once". However seeing a lot of strong signals that can't be decoded is a significant incentive to find out what the problem is and fix it.

So what was the result when the team announced they would have Release 2.0 available on December 10, 2018 and expected everyone to convert by January 1, 2019? In a word, success!

Conclusions

This change was a very successful flag day. There is almost no one using the old version after the end of the cut-over period. There are almost no complaints about the need to change.

Things that made this success possible:

Most of the usage of FT8 is concentrated in a small percentage of the users. This small percentage of users were early adopters. As a result, nearly half to the signals on one band were in the new format only 3 hours after the release of the new version.

There were a number of features in the new version of the software that would attract users to convert. These included better classification of a received station's location (for people interested in long distance communication) and support for more kinds of on-the-air ham radio activities.

Conversion was a simple drop-in replacement without a lot of effort required from the user.

File data formats did not change except for the details of some debugging information. Information about contacts made with the old version were available to the new version.

A user could easily switch back and forth between the old and new version, easing concerns of early adopters.

Software developers with similar advantages should give more consideration to having a flag day instead of including inter-operation code in their applications. A flag day might be particularly attractive if there is a strong desire to keep from splitting the user community, or if the development team is small.

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Breakfast and Lunch Gatherings

There are a number of lunch and breakfast gatherings in the area that are open to all radio amateurs and interested persons. Please let us know of any updates or corrections at info@w7yrc.org.

Third Thursday of the Month – **YARC** holds an informal **breakfast** gathering at the **BackBurner** Restaurant at 0800 MST. The restaurant is at 8400 Long Mesa Drive in Prescott Valley. Contact Don Bauer WB7TPH or Jeff Hanna WB7RFY.

Second Tuesday of the Month – **Quarter Century Wireless Association (QCWA)** brunch gathering, 1030 MST to 1230 MST at the **Golden Corral** Restaurant in Frontier Village in Prescott, off Highway 69. You do not have to be a QCWA member to attend.

Every Monday – **Dan Nichols (W6SAK SK) Memorial Lunch**, 1100 MST to 1230 MST at **roving locations**. Contact Bob Rosevear WB7RRQ, 928-458-7830, rosevear520@cableone.net; or Bob Smith WB6ODR, 928-443-9321, lrsmith@cableone.net for the next location.

Every Wednesday – **Breakfast** at 0700 MST at the **Manzanita Grill** at the Antelope Hills Golf Course, near the Prescott airport.

Yavapai Amateur Radio Club — W7YRC Club Station Access List — Effective December 22, 2018

Permanent Station Access (defined by YARC role) —

Name:	Call:	Lic. Class	Notes:	Telephone:
Billi Noe	W7PVA	E	YARC President	710.6925 – Do not contact for access
Frank Bender	K8FB	E	Station Manager	379.5575 – OK to contact for access
Pete Morrison	K6VVR	E	W7YRC Trustee	899.8555 - Do not contact for access
Bud Semon	N7CW	E	ARES/RACES Dir.	899.7400 - Do not contact for access
Jim Zimmerman	N6KZ	E	Elmer Group	713.0542 - OK to contact for access
Art Protas	KG6AY	E	Elmer Group	227.2954 - OK to contact for access

Building Access for Other Reasons (includes station access) —

Donald Bauer	WB7TPH	E	VE Chair	775.4690 - Do not contact for access
Brian Vlastelich	K7TSY	E	License Classes	583.7572 - Do not contact for access
Kathy Laing	KJ6KMK	E	Practice Exams	778.2526 - Do not contact for access

**YARC / YCJP Dual Access (members of both organizations)
Limited to those who are members of YARC and YCJP, already having building access —**

Randy Dashiell	W6TYV	G	Dual Member	602.501.2571 - OK to contact for access
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**Rotating Access (changes every July 1st)
This category is limited and consists of volunteer members —**

Rex Mauldin	N7NGM	E	Rotating Member	277.7164 - OK to contact for access
Mike Bélanger	W1DGL	E	Rotating Member	420.0498 - OK to contact for access
Rob Redford	KG7LMI	G	Rotating Member	623.252.3980 - OK to contact for access
Tony Jackson	K6PSR	G	Rotating Member	562.644.0528 - OK to contact for access
David Hanson	W7BJ	E	Rotating Member	602.615.3444 - OK to contact for access

Note to YARC Members —

**For station access, first try to contact the Rotating Access members.
If you are not able to contact the Rotating Access members, then try to contact the other “OK to contact for access” members.**



Club Officers, 2019

Officer	Name	Call Sign	Email Address
President	Bill Noe	W7PVA	w7pva@arrl.net
Vice President	Joseph Thomas	KG6IDN	vice.president@w7yrc.org
Treasurer	Jim Fortney	K6IYK	treasurer@w7yrc.org
Secretary	Art Jackson	KA5DWI	secretary@w7yrc.org
Director	Dave Erlach	W7V SX	rocketdog@dslextrême
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