YAVAPAI SIGNAL

The Yavapai Amateur Radio Club • Prescott, Arizona • DM-34 • Volume 29 - No. 10 • October 2014

From the President's Desk…

Hello again YARC members:

Following on the heels of Rex N7NGM presentation on possible directions for YARC, last month we held an open discussion of member ideas. Everyone I spoke with thought it was a very beneficial and productive evening. The most popular desire addressed was IRLP (interned radio linking protocol). Some of the other popular suggestions were: return of the build-nites (group builds); loaner radios for new hams; move the club Wednesday net to a more accessible repeater; list of Special Interest Groups on our website; community outreach efforts; scheduled repeater monitoring; a CW net and a 10Meter net.

All of these and more are great ideas, that YARC can and most likely will implement soon. Of course you are the catalyst and the means to do these things. Which are you willing to lead or to host?

In October, we will move the Wednesday night net to the ARES/RACES repeater on Mingus. It promises to provide better coverage for the area. Dale AD7NQ, our net control manager will make announce-ments each week until we make the move to 145.29 Mhz on October 15th.

Another of the suggestions from the September meeting was placing members radio interests on the club website (or roster). I think that this could be translated into a somewhat more functional plan. If we made a list of particular group interests (IRLP, VHF/UHF, CW, Sideband HF, Digital, etc) providing a list of these at the bottom of the roster, and a key (A, B, C etc) we could provide the letter key with individual's info on the roster. As an example, I could have; C, F (HF sideband, digital) associated with my listing. In conjunction with this, we could create a list of special interest groups (SIGS) on the website, with contact info for the group leader or SIG host.

One other suggestion that is both useful and valuable for emergencies is regular scheduled monitoring of the club's repeater, and other area repeaters. Could we build a schedule of repeater monitoring so that, when someone accesses the machine looking for directions or emergency help, they had a reasonable chance that there would be someone responding to their call? It is a really good idea, and easy to implement. How about it?

OK, I have rambled on long enough. Don't forget, I announced that we are having a contest to see who comes up with the best (in the opinion of the membership) "Radio Go-Kit". I hope to see several examples of portable/accessible/easily deployed stations "in a box". Hope you are having fun with this challenge. We will show off our efforts at the November meeting. So you have plenty of time.

See you at the meeting on **October 2nd**.

Don, WB7TPH

Membership Count:

1st Thurs. in August …... ..**199**

Gain/Loss.....…...…….....**0**

1st Thurs. in September …... **199**

INSIDE THIS ISSUE:

Welcome to the Yavapai Amateur Radio Club

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

Membership in the YARC is open to any interested amateur or non-amateur alike. Dues are $20.00/year (Full-time students $15). The YARC meets at 7:00 p.m. local time on the first Thursday of every month in the Technology Room 404, at the Granite Mountain Middle School, 1800 Williamson Valley Road in Prescott. It is about ½ mile north of Iron Springs road, and all amateurs and non-amateurs as well are invited. Programs of interest are included as part of the meeting.

The weekly Net is held every Wednesday at 7:00 p.m. local time on 146.880- repeater. All amateurs are invited to participate, and visitors are always welcome.

The Yavapai County ARES/RACES Net is held on Monday nights approximately at 7:00 p.m. local time on the 145.290- repeater on Mingus Mountain. A PL of 127.3 is required.

Club Repeater

The YARC 146.880- repeater is located on the hill above Willow Creek road and requires a PL of 100.0 Hz. Our deepest gratitude to Bill Kafka, W2YAV, (SK) for allowing us to acquire the original club repeater. ■

Need Cards Checked for ARRL Operating Awards?

Jim Zimmerman, N6KZ can check your QSL cards for DXCC, WAS, VUCC, WAC, etc.

For information contact Jim at: (928) 713-0542.
Jim's QTH is at: 778 Grapevine Lane, Prescott, AZ 86305.

Upcoming Events

- **September 27, 2014** - Groom Creek Classic 1/2 Marathon, 10K, 5K, 2 mile.
- **October 3rd and 4th, 2014** - Prescott Road Rally.
- **October 4, 2014** - VE Testing
- **October 11 and 12, 2014** - Arizona QSO Party
- **October 18, 2014** - Walk for Diabetes.

Club contacts - At a Glance

President - WB7TPH	president@w7yrc.org
Vice President - N7NGM	vice.president@w7yrc.org
Secretary - WH6EAL	secretary@w7yrc.org
Treasurer - W7BJ	treasurer@w7yrc.org
Board Member - AD7YR	cgrobeck@gmail.com
Board Member - W7HAM	smokey7@cableone.net
Board Member - WB7RRQ	rosevear520@cableone.net
Board Member - WN7E	mrgriz@cableone.net
Arizona WAC Administrator	az.wac@w7yrc.org
Ask Elmer for Help	ask.elmer@w7yrc.org
Badges	badges@w7yrc.org
Field Day Chairman	field.day@w7yrc.org
Fox Hunts	fox.hunt@w7yrc.org
License Classes	classes@w7yrc.org
Mail List	yarc_mail@w7yrc.org
Membership Application	membership@w7yrc.org
Net Manager	net.manager@w7yrc.org
Newsletter Editor	newsletter@w7yrc.org
Program Inputs	programs@w7yrc.org
Public Information Officer	pio@w7yrc.org
Public Service - DEC	public.service@w7yrc.org
Repeater Trustee	repeater@w7yrc.org
Special Events	special.event@w7yrc.org
VE Test Liaison	testing@w7yrc.org
YARC Party Coordinator	yarc.party@w7yrc.org
Information	info@w7yrc.org
Webmaster	yarc@w7yrc.org
Webmaster	w7yrc@w7yrc.org
Webmaster	webmaster@w7yrc.org

This is the best metric to fraction on line calculator I have ever found:

http://www.ginifab.com/feeds/cm_to_inch/

73, Dean W7DWS

Yavapai Amateur Radio Club
PO Box 11994
Prescott, AZ 86304-1994

TREASURER'S REPORT
August 2014

			General Fund	Repeater Fund
BEGINNING CASH BALANCE - July 31, 2014			**10,929.52**	**2,380.94**
Dues - Glenda "Sam" Dority	KB6RKJ	new	18.00	2.00
Dues - Steve Monroe	KF7BSB	new	18.00	2.00
Dues - Sue Monroe	KF7BSA	new	0.00	0.00
Dues - Ronald R Nelson	KC0TGG	new	18.00	2.00
Dues - Art Jackson	KA5DWI	new	18.00	2.00
Dues - Gary Lisciarelli	KG7EWE		18.00	2.00
Dues - Doug Freeman	KV8TD		18.00	2.00
Dues - Doreen Freeman	K7DRV		0.00	0.00
Dues - Paul E Schumacher	AD7SL		18.00	2.00
Dues - Szecepan Bartold	KD7HCS		18.00	2.00
Dues - Patti Halgunseth	KD7VBG		18.00	2.00
Dues - Russell Sherwin	AD6ZL		18.00	2.00
Dues - Jack Crabtree	W7JLC		18.00	2.00
Dues - Sue Crabtree	N0GUT		0.00	0.00
Dues - James Behnke	KJ6CDK		18.00	2.00
Donation - Glenda "Sam" Dority	KB6RKJ			10.00
50/50 Raffle			66.00	
50/50 Raffle – Bob Sitterley	K7POF		(33.00)	
Interest Income				0.11
TOTAL INCOME			**249.00**	**34.11**
Shadow Mtn Mini Storage - space rent	dr cd		432.00	
Postmaster - PO box rent	1212		78.00	
Catalina Radio Club - AZ QSO sponsor	1213		45.00	
TOTAL EXPENSES			**555.00**	**0.00**
ENDING CASH BALANCE - August 31, 2014			**10,623.52**	**2,415.05**

Signature: _____ Date: 9/1/2014
David B Hanson, W7BJ, Treasurer

September 2014 Foxhunt

By John Broughton, WB9VGJ

The monthly foxhunt was held Sunday, September 7th. The foxes were Diane, KE7ODP, Pete, K6VVR, Patrick, KG7EWD, and Marie, KG7GLQ. They filled in for Bob, WB6ODR, and Linda, KD7EEO, who won last month's hunt but were out of town.

We had one of the largest turnouts we've had in a long time. There were three teams of hunters this month:

1. Jeff, WB7RFY, and I composed one team.
2. Forrest, WH7EAL, Clayton, KJ6QJS, and Ryan, KG7GLR.
3. Dave, W7BJ, and Frank, KF7ANX.
4. Mike, AD5SU, and Sid, W7QJQ
5. Mike, W1DGL, Franklin, KG7GLW, Mike and Rhonda, both of whom are planning on taking their Technician test at the next test session.

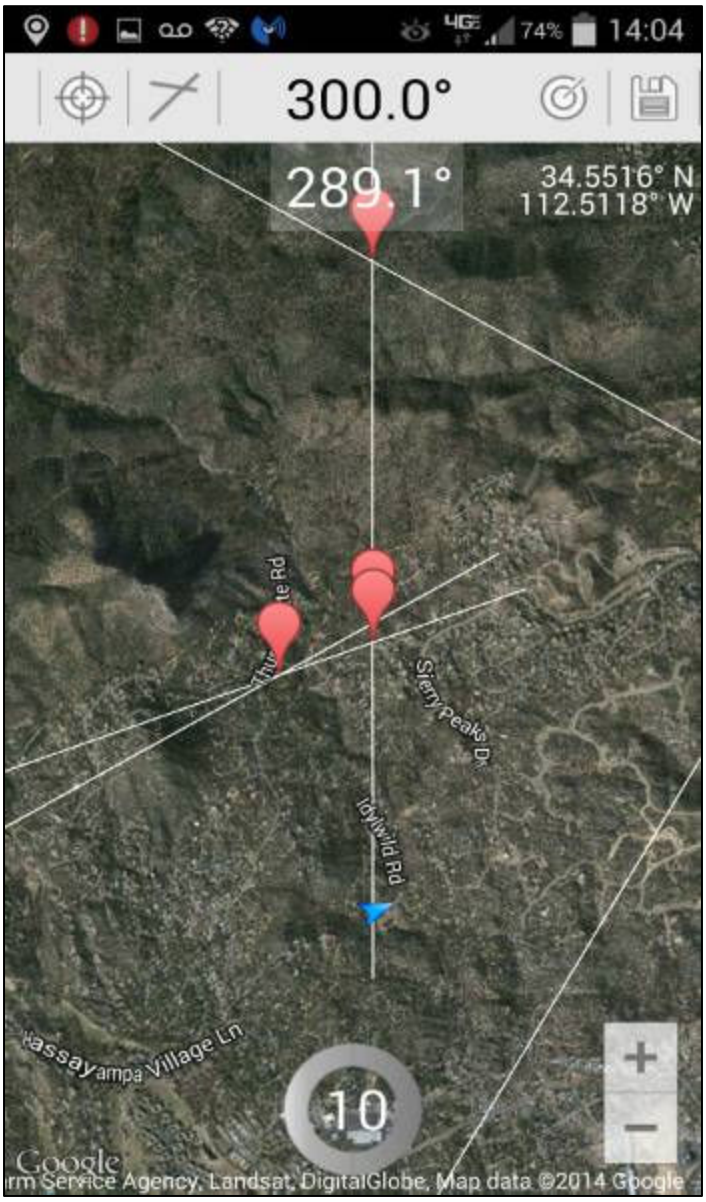
There was a little delay at the start due to a downpour. Jeff and I had to wait about 15 minutes or so to begin because his sunroof was partly open so he could put the mast of his beam through the fixture that holds it there and that allowed rain onto the driver's and passenger's seats. We used umbrellas to keep dry for a few minutes and then he drove under the canopy of the drive-up window at the Credit Union until the rain nearly stopped.

The transmitters on Thumb Butte Rd., not far from Thumb Butte. The winners were Dave and Frank, beating the second place team of Forrest, Clayton and Ryan by 24 minutes, a large margin. Congratulations to Dave and Frank!

I tried a new direction finding app I had bought that morning: SigTrax:

http://www.amcept.com/sigtrax/

This app, available for Android and iPhones, lets one plot bearing lines on a map in order to see where they meet. Here is a screen shot of the app after Jeff and I had taken two readings and plotted the bearing lines:



The red balloon on the left is the cross point from the first two readings I took and it turned it was very close to where the transmitters were located. The vertical line in the center is a third bearing we took when we were not far away from the transmitters.

As you will see when you see the map of the route Jeff and I took in the pictures I took (link below), we were very close to the transmitters, but due to there being no roads that led directly to Thumb Butte Rd. from our closest point in a subdivision north of the road, we had to go all the way to Gail Gardner Way and around to get to Thumb Butte Rd., which took a bit of time.

As one has to approximate the direction of the signal manually by rotating the map to create a bearing line, and the fact that it is difficult to precisely get the direction as the signal strength is the same for several degrees left and right of the direction from which it is coming when one is taking a fix with the beam, it turned out to really help locate the position of the transmitters.

Overall, I liked the app and will enjoy becoming more familiar with it on future hunts.

We had our usual after-hunt get-together at JB's Restaurant; the social aspects of the hunts are as enjoyable as the actual hunts.

You can see pictures of the hunt, and our gathering at the restaurant, at:

http://tinyurl.com/YARCFoxhuntSeptember2014

We would encourage more folks to get involved in the hidden transmitter hunts. They are really fun and help develop direction-finding skills.

73,

John, WB9VGJ

Reporters interviewing a 104-year-old woman...
'And what do you think is the best thing about being 104?' the reporter asked.
She simply replied, 'No peer pressure.'

VE Testing

By Don Bauer, WB7TPH

The next chance to upgrade or get that new ham license will be on Saturday October 4th, at 9:00 AM.

The September 20 class at Embry-Riddle, hosted by Jack W7JLC will, no doubt, provide plenty of candidates. So, if you want to upgrade (or get licensed for the first time) here is your chance.

YARC Officers for 2014

President	***Vice President***
Don Bauer, WB7TPH	Rex Mauldin, N7NGM
president@w7yrc.org	*vice.president@w7yrc.org*
Secretary	***Treasurer***
Forrest Murdock, WH6EAL	David Hanson, W7BJ
secretary@w7yrc.org	treasurer@w7yrc.org

Board of Directors (includes Club Officers)

Creighton Grotbeck -- AD7YR

Ralph Gendron -- W7HAM

Bob Rosevear -- WB7RRQ

Tom Griswold -- WN7E

Newsletter Editor: Joe Oliver, AC6AA
newsletter@w7yrc.org

October Program:

The meeting for October will be very short, as the program by guest speaker, Mike Pulley promises to be both interesting and interactive. Mike is joining us from the valley, to present "The Role of Amateur Radio in Disasters". Mike's intro says:"When the spam hits the fan, it's not radios that matter. It's the good stuff we can accomplish because we have radios that counts.

This class is built around an active role playing exercise that simulates a disaster relief net. We'll focus on the What we can accomplish, not the How. (So, don't expect to talk about watts, antennas, or other techno stuff.) It's active, it's instructive and it's fun"

EVENT COMMUNICATIONS.....

By Lloyd, WA6ZZJ

Only two October events remaining on the 2014 Event Communications Calendar.

Upcoming Public Service Event Communications.....

Friday and Saturday , October 3rd and 4th is the Prescott Road Rally. Go to www.prescottrally.com and click on "Volunteers" to go to the sign up form. If you have a preference as to where you would like to work, please add a comment in the box at the bottom of the page just above the "Submit" button. Be sure to check the boxes in the form for when you will be available.

Saturday, October 18, 2014 is the Walk for Diabetes. This is another good event for first time communicators. **John, WB9VGJ, will be coordinating this event.**

MARCH of DIMES MARCH for BABIES....

On Saturday, September 6, 2014 ten YARC members assisted in providing communications for the March of Dimes March for Babies in Prescott. Located at three fixed locations and one operator in the March of Dimes Van, safety communications was provided for the walkers in the event. The event reportedly raised $30,000.00 for the March of Dimes so our participation in these events assists in this effort. For those who wanted, breakfast was catered in by IHOP. As always the organizers appreciated our communications assistance on the event. Even though this was a small event it doesn't make our communications support any less important.

Amateurs involved were: N6EEI, KF6SPS, W6CCD, KJ6QJS, KF7MMO, W7DWS, W7BNW, W7TRW, KD7VBG and WA6ZZJ.

SKULL VALLEY LOOP CHALLENGE.....

Sunday, September 21, 2014 ten YARC members provided communications for the 2014 Loop Challenge. The Loop Challenge is a 54 mile bicycle ride starting in Prescott going out Iron Springs Road and then through Skull Valley, Kirkland, Wilhoit and returning to Prescott. Rest Stop positions were manned in Kirkland and Wilhoit along with operators in three SAG vehicles patrolling the route.

Amateurs involved were: KF7MMO, KJ6QJS, KK6AFC, KG7GTZ, KG7LMI, W7BJ, W7PRG, KF7SVY, KD7VBG and WA6ZZJ.

Thanks to all who took part in the above events. Participating in these events helps YARC maintain its Special Service Club Status.

YARC EVENT COMMUNICATIONS...

There still seems to be some confusion as to just whose name these events are supported in. When I first started coordinating communications for the events in 1997 the operations were done as ARES. At that time I was trying to get a ARES organization established in the Prescott area. After doing a few events as ARES and then discussing it with some YARC Club members these events were moved to be done as Yavapai Amateur Radio Club events beginning with the Frontier Days Parade on July 4, 1998. They have been coordinated as Yavapai Amateur Radio Club events to this date. It is the YARC logo that some organizers put on their event t-shirts to show sponsorship.

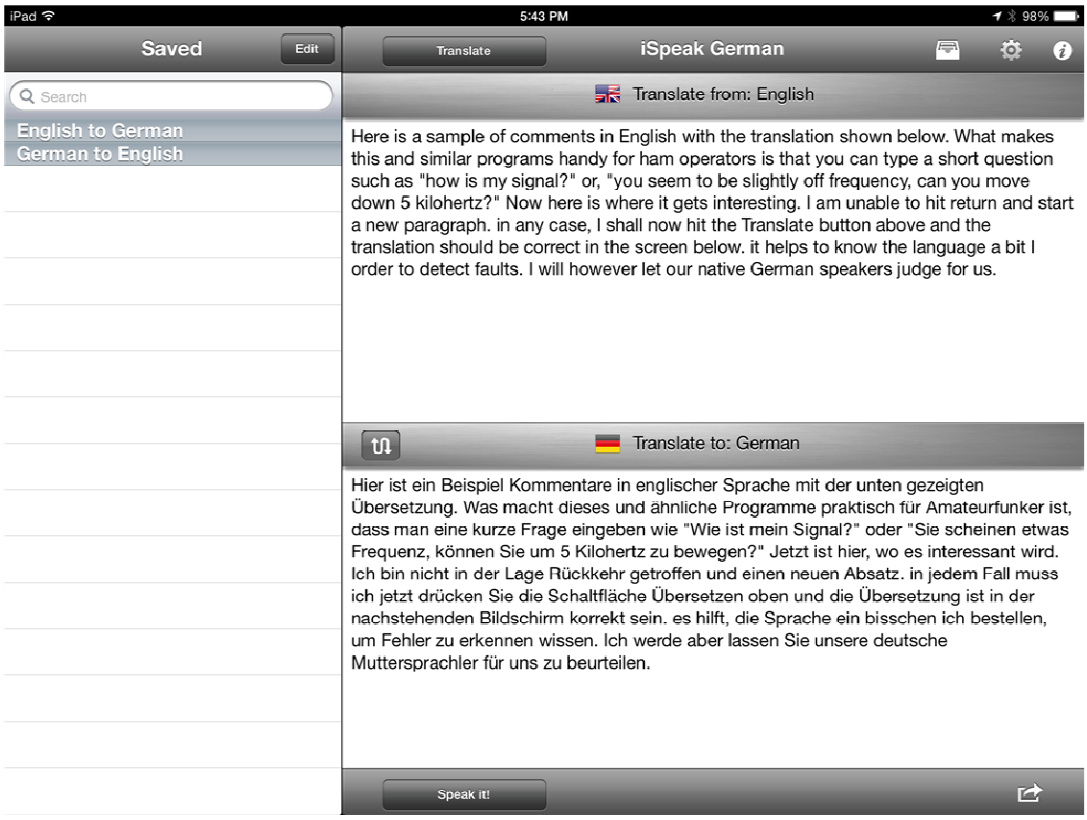
Yes, you will see the ARES/RACES Mobile Communications Vehicle (MARC) at the events. It is there as a support unit and to be exercised occasionally to make sure all systems are working. It is also a convenient unit to operate event net control from and has on occasion served as an event command post. This is not meant to take away from these being YARC events.

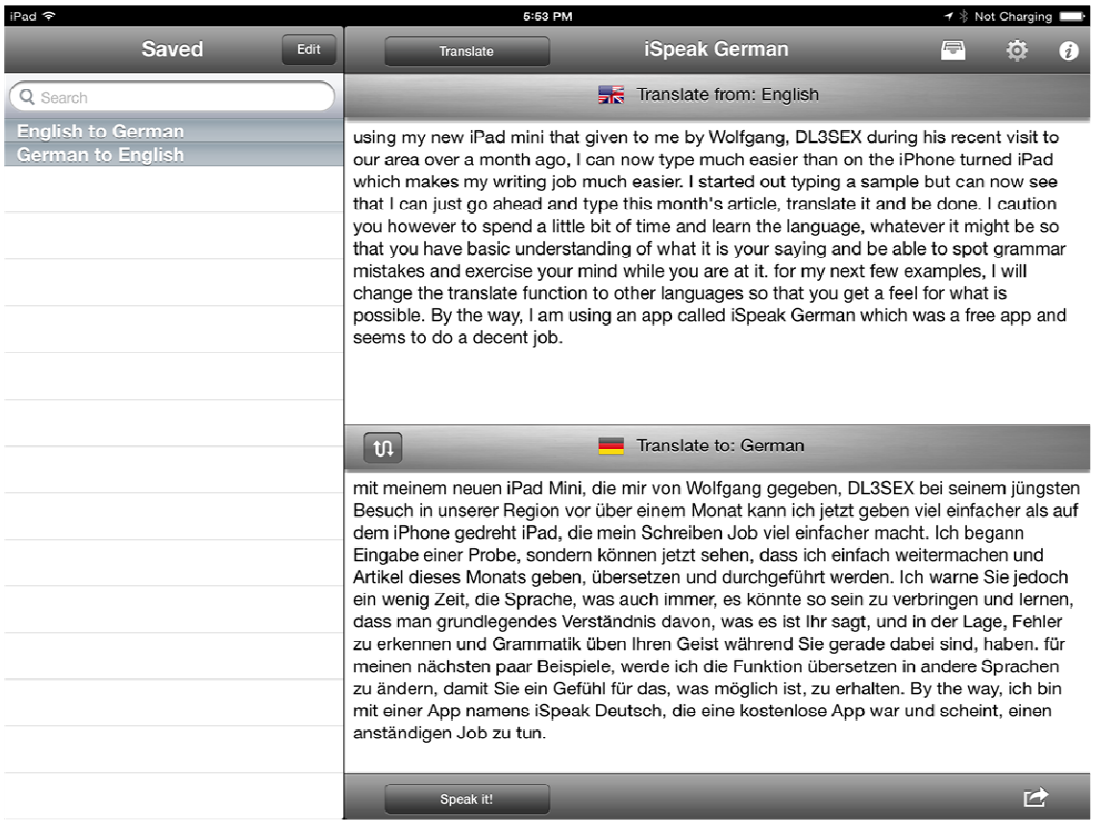
With the event season winding down, I want to thank all of our members who have stepped up to assist with the communications in 2014. There are still several members who have not participated. It is not a hard task to handle. You have your license, your transceivers and you know how to talk on them.

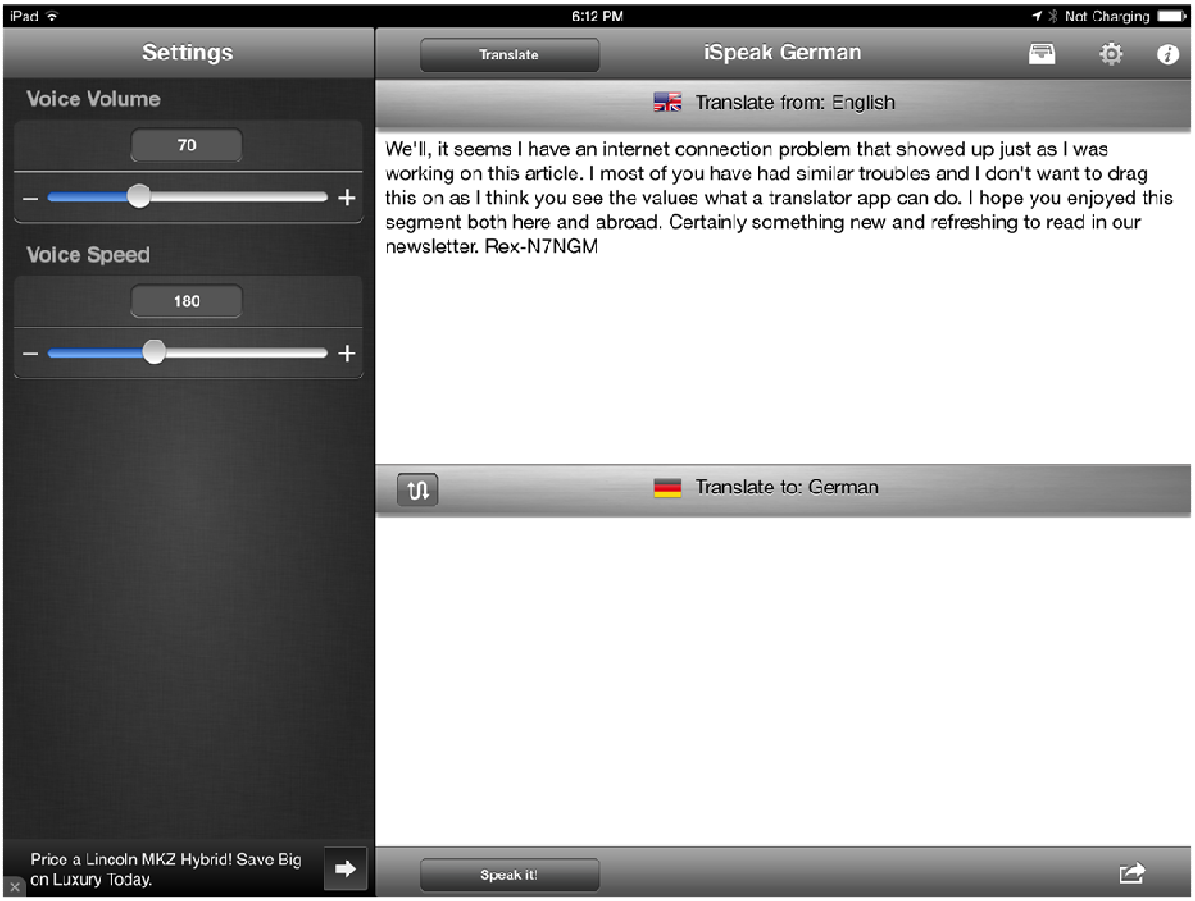
The 2015 season looks to begin on Saturday, January 31st with the Sedona Marathon in the Verde Valley. Once again, we will try to coordinate with the Verde Valley Amateur Radio Association. Put the date on your calendars. ■

App Chat

By Rex Mauldin, N7NGM







2014 Arizona QSO Party

Announcing the **2014 Arizona QSO Party**, sponsored by the ARRL Arizona Section and Catalina Radio Club, from **Oct 11 1600Z to Oct 12 0600Z** and **Oct 12 1400Z to Oct 12 2359Z**. Phone, CW and Digital modes on 160/80/40/20/15/10/6/2 meters. Single-Op, Multi-Op, Arizona Multi-Multi, Arizona County Expedition and Mobile categories. Work stations once per band and mode. Mobiles may be worked once per band and mode in each county. County Line operations (two counties max) count as 2 QSOs. Outside Arizona exchange sequential serial number and location (State, Province, or DXCC Prefix). Arizona Stations send sequential serial number and State/County abbreviation. Suggested Frequencies (kHz): CW: 1812, 3548, 7048, 14048, 21048, 28048, 50048. SSB: 1848, 3848, 7189, 14248, 21348, 28448, 50148. FM Simplex: 146.48MHz. One point per Phone QSO, two points for CW and Digital QSOs. Multipliers for non-AZ entries are the 15 AZ counties by band and mode. Multipliers for AZ entries are States, Provinces, and DXCC Countries by mode. Final score is total QSO points times total multipliers + 100pts for Special Event Station **W7SA**. Mail logs no later than **Oct 31** to Catalina Radio Club, C/O Gary Keck, PO Box 17811, Tucson, AZ 85731 or via email to logs@azqsoparty.org . For full rules, along with log and summary sheets, Cabrillo electronic file format, and Award information, see http://www.azqsoparty.org.

Proposed YARC Mobile Station

By Rex Mauldin, N7NGM

This is an update on the former plumbing van that could become our club project if the membership decides to proceed with it. In these photos, you will see a side view showing the paint job that needs to be done. This vehicle has a wench located in the rear and above the sliding door. This wench is ideal for hosting a tower into position. There are also brackets along the passenger side of the van which would allow transport long poles which could also be used for setting up portable towers without having to use a trailer. Inside the van are several shelves which could be used for transportation of a variety of gear such as radios, test equipment, tents, food, water and other items that could be used at a temporary field day type location.

According to Pete, the van starts up and runs just fine, brakes seem to work fine and the transmission shifts with no noise or any indication of trouble. What we seem to have here is a vehicle that mechanically is sound, needs some attention to normal items such as belts, hoses, plugs just to keep it running well, tires, paint job and is suitable for installation of radio gear and other associated items. ■

WHAT IS ATV?

By Mike Collis, WA6SVT

Reprinted from the Amateur Television Network website.

WHAT IS ATV?

Presented by Amateur Television Network (www.atn-tv.org)

SECTIONS

1. What is ATV
2. Operation
3. Receivers
4. Transmitters
5. Antennas
6. Repeaters

Section 1: What is ATV?

Amateur Television (ATV) is divided into two primary types: Slow Scan - a system used on the HF bands occupying the audio bandwidth of an amateur station to transmit a few still pictures per minute to another station usually over long distances and Fast Scan - a system of sending broadcast quality full motion pictures over shorter distances on the UHF and microwave bands.

In this presentation we will examine the Fast Scan version of ATV.

Back in the late 1940's hams in many parts of the country helped develop commercial television. The old Amateur 5 meter band was used for this mission. They were very helpful evaluating reception of different system types and many engineers were also hams using their vast technical knowledge for television development. The hams - being hams - decided to build their own stations. In the early days it was home brew or converted war surplus UHF equipment.

By the 1960s home brew and converted UHF two-way radios were used.

By the 1970s technology changes were afoot with modulator and downconverter kits and completed boards followed a few years later by a complete ATV station in a box were available from PC Electronics and other manufacturers. By the mid 1970s Metrovision in Washington DC was the group that had built and licensed the first ATV repeater in America. By 1979 WA6SVT had built the first wide coverage repeater in California on top of Mt Wilson.

Over the years a group called Amateur TV Network (ATN) was formed to support the repeater and many more repeaters soon followed.

ATN now has six state chapters across the country.

Today it is easier than ever to get on the air with ATV for less than $700 for all new equipment and less than $100 for the builder. The oldest and most widely used mode of ATV is AM and a related modulation - Vestigial Sideband (VSB). A cable ready TV set can directly pick up ATV on the 420 MHz band. A downconverter is needed for the higher bands. Your camcorder can be used for your ATV camera. All that is needed is a transmitter and antenna and you are on the air!

FM ATV is one of the fastest growing modes of ATV. FM ATV uses 4 MHz deviation (the terrestrial commercial TV standard used for studio to transmitter links and ENG) in the 0.9, 1.2, 2.4 GHz and higher bands. A few ATVers use the satellite (TVRO) standard of 11 MHz on the 3.3 GHz and higher microwave bands. FM ATV using converted part 15 TV room to room links - such as the WAVECOM units - is available from ATV vendors. FM ATV is the preferred mode in Europe on 1.2 and 2.4 GHz bands.

Digital ATV is just starting out by converting analog video to MPEG-2 bit stream with QPSK, 8-VSB, and DVB modes of digital modulation. Most of the research to date is done in Germany by the DATV group using standard definition DTV on 434 MHz using 2 MHz of occupied bandwidth and HDTV on 1.2 GHz using 6 or 7 MHz of bandwidth. In this country ATN has started experiments using the methods above and using internet pipelines to link distant ATV repeaters (see http://www.atn-tv.org) and look under ATN on the internet for more details). The HSMM group is experimenting with multimedia formats including ATV using 802.11b and WiFi part 15 equipment occupying 22 MHz in the 2.4 GHz band.

Section 2: Operation

ATV is unique in that it enables a ham to show and tell another ham in real time his shack, latest project, field day, home video of the family's vacation, and other events. ATV for public service allows pictures in real

time to be sent to emergency operation centers to report storms and damage assessment.

Most ATVers use a 2 meter calling and coordination frequency to set up ATV contacts. 144.34 MHz is popular in the Midwest and some areas of the East Coast. 146.43 MHz is popular in the west.

Most ATV repeaters have a 2 meter receiver on site to mix in the calling channel audio with the TV audio. On the 420 MHz band polarization is usually vertical with areas that use 434 MHz and horizontal in areas that use 439.25 MHz and areas with inband 421.25 MHz out and 439.25 MHz in repeaters. Most cross-band repeaters use vertical polarization on both bands.

Lighting is important for good ATV pictures. More detail is available in "Advancing the ATV Art Workshop" produced by ATN.

A camcorder, CCTV camera and most analog output computer cameras work well for ATV. Antennas should be above the tree line for good DX on simplex and operation to far off ATV repeaters.

Low loss feedline should be used. A low noise preamp is a good idea if you use a cable ready TV or an older downconverter.

At least 10 watts is needed for good ATV distance and 100 watts or more for long haul DX work.

ATVQ magazine (http://www.atvquarterly.com) is a good resource for information on what is happening in your area on ATV, projects you can build, ATV group information and advertising for the latest ATV gadgets for sale by reputable ATV vendors and manufacturers.

Section 3: Receivers

The simplest ATV receiver for AM or VSB is the standard TV set using a 6 MHz wide channel. A cable ready TV can receive the 420 MHz band ATV signals - just add an antenna (and preamp for even better performance) and you are ready to receive ATV! For a non-cable ready TV add a downconverter and for the higher bands a downconverter is needed for all TV sets.

FM ATV needs a TV with A/V inputs or a video monitor, both requiring a full FM TV receiver. Low cost Part 15 domestic units work well on 2.4 GHz and imported Part 15 type units work well for 1.2 GHz or 2.4 GHz bands. A satellite receiver can work on 0.9 and 1.2 GHz bands for FM TV but are set up for wideband FMTV and need a preamp and filter for better operation. They work well for Wideband ATV with a downconverter on the 3.3 GHz band and above.

Section 4: Transmitters

It used to be said that AM TV on the 420 MHz band was the easiest way to get on ATV and that is still probably true but the Part 15 FM TV units are also simple to use on 2.4 GHz. Most ATVers use off the shelf transmitters or a transmitter with a built in downconverter. Transmitters use crystal control or PLL to set frequency and AM modulate the carrier directly with video.

Audio is modulated on a 4.5 MHz subcarrier and mixed in at the video modulator. The transmitter is double sideband occupying 9 MHz. The easiest way to build a VSB ATV transmitter is to either add an external RF 6 MHz wide bandpass filter to your existing AM transmitter or use a CATV Modulator.

CATV modulators are rack mountable and are much more sophisticated. They modulate a 45.75 MHz IF with video then filtered though a VSB 5 MHz wide IF filter. The audio is modulated on a 41.25 MHz carrier at 25 KHz deviation. Usually the aural carrier is phase locked to the visual carrier maintaining a precise 4.5 MHz difference. The aural and visual carriers are mixed to the final output frequency and amplified. Most CATV modulators can produce an output to 550 MHz making them suitable for the 420 MHz band. The modulator output is in the 10 to 20 m/w level requiring amplification with a class AB RF power module.

The easiest FM ATV transmitter is a Part 15 TV unit on 2.4 GHz. The frequency chip can be changed to put all four channels into the ham band on coordinated ATV frequencies. Amplifiers are available from ATV vendors. Imported Part 15 type TV units for 1.2 GHz band are available from ATV vendors.

Section 5: Antennas

The antenna system and its placement is one of the most important items in designing any ham station. In ATV we need more signal as compared with voice modes due to our larger bandwidth.

Base stations should use a directional 13 dBd or better

gain antenna to get as much signal as possible and to reduce co-channel QRM and multipath. The polarization is dependent on what is used in your area. Stacking yagis or using larger microwave dish antennas will give better DX on ATV.

The best location for your antenna is above the roof line and trees. Stay away from RG-58, RG-8 and other HF-VHF feedlines. They have too much loss at UHF and even more on microwave. The same goes for the PL-259 connector. Use type N or other quality connectors. LMR-400, 9913 and heliax are preferred feedlines for ATV. Try to keep losses under 3 dB. Waveguide is used for the 5 and 10 GHz bands. DX can reach 50 to 100 miles with good antenna systems and several hundred miles with tropo ducting. KH6HME's ATV transmission from Hawaii was received by ATV stations 2500 miles away in California in full color with tropo ducting.

Section 6: Repeaters

ATV repeaters are fast becoming popular for ATV activity. Today many hams are finding themselves in antenna restricted communities reducing simplex ATV to about 10 miles but an ATV repeater on a high tower or mountain top allows longer distant ATV contacts. Many ATV groups and individuals have built ATV repeaters. ATN has a linked network of interstate repeaters allowing ATV contacts over hundreds of miles.

The two types of repeaters are:

Inband where both the input and output are in the same band (popular in the Midwest since existing ATV simplex stations do not require additional equipment to use the repeater) and Cross band repeaters have the input and output in different bands allowing the sending station to see his own picture, make adjustments to his station and hear distant stations talk back to him over the repeater via the ATV 2 meter calling channel audio mixed at the repeater. A separate antenna and downconverter or transmitter is needed compared to simplex operation.

The Microwave Experimental Television Society (METS) uses a wideband FM input on 10.4 GHz using Gunplexers to transmit and slightly modified domestic C band satellite receivers to receive their 3.4 GHz wideband FM TV repeater output.

ATV repeaters are located in a high centrally located area and use omnidirectional antennas. The repeater's transmitter is keyed up upon detection of horizontal sync on the repeater receiver. ID is usually done visually by momentary interruption of the received ATV signal by an ID screen or done via video overlay.

Some repeaters have two inputs: one is the old 420 MHz channel and the 2nd is a 2.4 GHz FM TV channel.

MPEG-2 Motion Picture Engineering Group's broadcast digital video standard

DVB European HDTV and DTV standard

QPSK Quadature Phase Shift Keying

8-VSB 8 Level digital Vestigial Sideband, the US HDTV and DTV standard ■

Need a Hand?

If you need assistance, we want to help you. If you are just starting out in ham radio, or simply have run across something that you could use a hand with... technical assistance or answers to questions about the Yavapai Amateur Radio Club, are available from knowledgeable club members.

Don't Hesitate to Ask for Help!!

CALL:
Bud Semon, N7CW at: (928) 771- 8267
or
Jim Zimmerman, N6KZ at (928) 713- 0542

A husband takes the wife to a disco.

There's a guy on the dance floor living it large - break dancing, moon walking, back flips, the works.

The wife turns to her husband and says: "See that guy? 25 years ago he proposed to me and I turned him down."

Husband says: "Looks like he's still celebrating!!!

I bet that husband never danced again!

Get Together for Breakfast

Wed. Morning Breakfast:
7:00 a.m. at the Manzanita Grille *(Prescott Golf Course).*

informal – all are invited

Breakfast at Masonic Lodge:
3rd Saturday of each Month at 9:00 a.m.

(1280 Willow Creek Road, 2nd Floor; above Bank of America)

informal – all are invited

Area Packet Node Station Frequencies.

See http://www.k7yca.org/packet_radio.htm for a list of Winlink nodes and gateways "

Area Repeaters

Freq.	PL	Location	Owner/ Club	Auto-Patch	Links	Vo IP	Notes:
52.560-	100.0	Mt. Union	N7NGM			IRLP	Node 3301
144.390	Simplex						APRS- www.aprs.fi
145.290-	127.3	Mingus Mtn.	K7YCA				ARES/RACES
145.350-	162.2	Wildflower	W7QHC				Dawn
146.620-	162.2	Yarnell Hill	N7YKT				H.A.R.K.
146.760-	131.8	Hayden Peak	N7SKO				WECOM INC
146.780-	91.5	Bill Williams Mtn.	K7NAZ			IRLP	BWMRC LITZ, 3178
146.880-	100.0	Prescott Heights	W7YRC				YARC
146.920-	162.2	Mount Ord	W7MDY				ARA
146.980-	162.2	Mt. Elden	W7ARA				ARA
147.000+	162.2	Mingus Mt.	K7MRG				MMRG
147.140+	162.2	Mt. Elden	W7ARA				ARA
147.220+	162.2	Mingus Mtn	W7EI				VVARA LITZ
147.260+	103.5	Mt. Union	K7YCA				ARES/RACES
147.260+	127.3	Mt. Francis	K7YCA				ARES/RACES
147.360+	162.2	Mt. Ord	W7MDY				ARA
442.150+	100.0	Mingus Mtn	K7MRG				MMRG
446.025	Simplex		N7NGM			Echo	
448.475-	100	Mt. Elden	W7ARA				ARA
448.875-	100.0	Mt. Elden	W7ARA				ARA
449.250-	192.8	Chino Valley	K7POF				
449.7250-	107.2	Mingus Mtn	K6DLP				
927.0875-	151.4	Mingus Mtn	WB7BYV				
927.3875-	151.4	Prescott	WB7BYV			Echo	ARA

T-Hunt Frequencies:
Primary - 145.100 MHz
Secondary - 146.565 MHz

For more Repeater Information & Listings refer to:
- ***www.w7ara.org/Web/***
- ***www.azrepeaters.net***

YAVAPAI AMATEUR RADIO CLUB

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Visit us on the web at http://www.w7yrc.org

Many thanks to Dick Hughes, W6CCD, our Webmaster