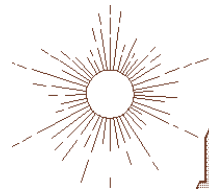


**ADAW**

4529 W. Park Place  
Glendale, AZ 85306-1512



**ADAW**

**Arizona Desert Aire Waves**

**Vol 42, No 11      November 2017**

**CLUB MEETING SCHEDULE**

**QCWA**  
December  
TBD

Carefree Area  
11:00 AM

**WVARC**

Nov 6th  
St Clement Catholic Church  
Social Hall  
7:00 PM

**SuperstitionARC**

Nov 21st  
Charles K Luster Bldg  
7:00 PM

**ARA**

Nov 20th  
Denny's Restaurant - Tempe  
7:30 PM

**MARCA**

Nov 21st  
Denny's Restaurant - Tempe  
6:30 PM

**MARA**

Nov 4th  
Maricopa PD Community Rm  
9:00 AM

**ANSR**

Nov 20th  
via GoToMeeting  
7:30 PM

**YARC**

Nov 2nd  
Mile High Middle School  
7:00 PM

**OVARC**

Nov 17th  
Ascension Lutheran Church  
7:00 PM

**CARL**

TBA  
AZ Science Center  
TBA

**CLUB MEETING SCHEDULE**

**SARC**

Nov 1st  
Scottsdale Senior Center  
7:00 PM

**AARC**

Nov 9th  
Red Cross Bldg. - Phx  
7:30 PM

**OPRC**

Dec 13th  
Marshall Conference Ctr  
at Tucson Medical Ctr  
7:15 PM

**TBARC**

Nov 16th  
North Phoenix Campus  
Northern Arizona University  
7:00 PM

**MCCARC**

Nov 6th & 20th  
Mesa Community College Tech Bldg  
7:00 PM

**CADXA**

Nov 2nd  
PERA Club  
7:00 PM

# ADAW Member Clubs

## ARIZONA AMATEUR RADIO CLUB

The Arizona Amateur Radio Club meets on the **SECOND THURSDAY** of each month at 7:30 p.m. at the American Red Cross Building at 4747 N 22nd St. in Phoenix. Visit web site at [www.W7IO.org](http://www.W7IO.org) for map. Visitors are welcome.

President	Gary Hamman	K7GH	602.996.8148
Vice President	Joe Cutitta	W0SLI	623.215.2226
Secretary	Reinhard Geissler	K7RGG	
Treasurer	Bob Hodges	K7JIT	602.375.9982
Activities Mgr	Lori Cripps	WA7EDI	602.955.7517
Membership	Bob Hodges	K7JIT	602.375.9982

AARC c/o Bob Hodges, K7JIT, 15214 N 7th Place, Phoenix, AZ 85022. DUES: \$15.00/YR, Prorated (\$18.00 Family, \$9.00 Student), MEMBERSHIP YEAR BEGINS FEB. 1.

## SCOTTSDALE AMATEUR RADIO CLUB, INC.

The Scottsdale Amateur Radio Club meets the **FIRST WEDNESDAY** of each month at 7:00 p.m. in Room 8 at the new Scottsdale Senior Center located at 1700 N Granite Reef Road (west side of Granite Reef Rd., 50 yards north of McDowell Rd. Parking on site). The club also holds a net every Tuesday night at 7:00 p.m. on the 147.78/1.18 repeater.

President	James Wasson	N7ELL	480.456.1154
Vice President	Kelley Law	KF7ZVL	
Secretary	Paul Jorgenson	KE7HR	
Treasurer	Alan Jensen	KE7FSD	
Past President	Paul Finell	W7EFQ	602.741.6563
Board Members	Jerry Jacques	KE7GYM	480.239.8679
At-Large	Dreux Jacques	W7EMU	
	Louis Schmitt	NQ7I	
	Judy Jensen	KE7IXI	480.773.8452
	David Yee	N7AJR	
	Paul Jorgensen	KE7HR	
	Ed Nickerson	WU7S	480.949.5162
	Charlie Brown	NJ7U	
	Bill Kouchis	N9EIV	

SARC, P. O. Box 10878, Scottsdale, AZ 85271-0878. Phone: 602.735.3988. DUES: \$20.00/YR, (\$10.00/Add'l Family Member). Web Site: [www.scottsdalearc.org](http://www.scottsdalearc.org)

## ARIZONA NEAR SPACE RESEARCH

The Arizona Near Space Research group meets the **THIRD MONDAY** of the month at 7:30 p.m. on Skype. Technical meetings are held the first Monday of the month at 7:30 p.m. on GoToMeeting. Please contact an officer about joining our meetings.

President	Stephen Thomas	KE7TLS	iamgadget1@yahoo.com
Vice President	Clayton Jacobs	KJ6QJS	
Secretary	Steve Miller	W6SDM	
Treasurer	Bill McLean	K7WWM	bmclean@gmail.com

ANSR, PO Box 31003, Mesa, AZ 85275-1003. DUES: \$10.00/YR. Web Site: [www.ansr.org](http://www.ansr.org)

## THUNDERBIRD AMATEUR RADIO CLUB

The Thunderbird Amateur Radio Club meets the **THIRD THURSDAY** of each month at 7:00 p.m. at North Phoenix Campus of Northern Arizona University located at 15451 N. 28th Avenue (near I-17 and West Greenway Road). The meeting is held in room 147. See the website (<http://w7tbc.org>) for a map and more details.

President	Gary Duffield	WK7B	602.843.7724
Vice President	Chris Johnson	K6OZY	623.866.2777
Secretary	Gary Cline	AF7BJ	
Treasurer	Darren Johnson	AF7CO	
Board Members	Joe Arnold	AD0X	
	Andrew Cornwall	KF7CCC	
	Wayne Hale	W6IZK	
	Robert Fairfield	K7RQN	
Past President	Walt Reinert	NJ8G	602.938.8219

For further information about the ThunderBird Amateur Radio Club, visit our website at <http://w7tbc.org>, send an e-mail to: [info@w7tbc.org](mailto:info@w7tbc.org) or call 602.938.8219. Mailing address: PO Box 83615, Phoenix, AZ 85071-3615.

## OLD PUEBLO RADIO CLUB

The Old Pueblo Radio Club meets the **SECOND WEDNESDAY** of March, June, September and December at 7:15 p.m. in the Marshall Conference Center at Tucson Medical Center. Visitors are welcome.

President	Ron Kalish	N7SPW	520.207.3852
Vice President & Treasurer	George Devich	N9IUK	520.760.0125
Board of Directors:	Cliff Hauser	KD6XH	
	Jim Ulmer	KC7THU	
	Lin Donnelly	KF7CNR	
WebMaster	Ted Willis	AA7HX	520.790.3828
	(www.oprc.org)		
Trustees:	(all repeaters operating under the K7TRA call)		
Primary	Cliff Hauser	KD6XH	
	146.660, 146.820, 147.220-		
	Paul VanBeverhoudt	KA7LFX	224.06+
Secondary	Ted Willis	AA7HX	146.66-
	Ralph Turk	W7HSG	146.82-
	Paul VanBeverhoudt	KA7LFX	224.06+

Mailing address: OPRC, P.O. Box 42601, Tucson, AZ 85733-2601. DUES: Individual - \$20.00/YR, Family - \$30.00/YR.

## AZ RED CROSS COMMUNICATIONS CLUB

The Arizona Red Cross Communications Club meets at the Red Cross Building located at 4747 N 22nd Street in Phoenix. The group meets at emergency drills and at the call of the officers.

President	Frank Engstrom	KB7IQ	480.209.7300
Vice President	Larry Buchanan	AA0LB	623.703.9161

Arizona Red Cross Communications Club - K7ARC, 4747 N 22nd Street, Phoenix, AZ 85016.



## ADAW Member Clubs

### BARRY M GOLDWATER, ARIZONA CHAPTER QUARTER CENTURY WIRELESS ASSOCIATION

The Barry M Goldwater Arizona Chapter of the QCWA includes amateurs from all over Arizona. Four luncheon meetings are planned each year. The meeting months and locations are announced by newsletter, but generally follow the following schedule:

Spring Meeting	March/April	Tucson Area
Summer Meeting	June/July	Prescott Area
Fall Meeting	October	Phoenix Area
Holiday Meeting	December	Carefree Area

The AZ Chapter meets on the air every Sunday morning at 0700 MST (0730 during December and January) on 3890 +/- QRM. During December and January, the net time is moved to 0730 MST.

President	Tom Fagan	K7DF	520.574.1129
Vice President	John Marshall	WA7BST	623.334.2583
Secretary	Clifford Hauser	KD6XH	520.235.7393
Treasurer	Dave Hanson	W7BJ	w7bj@outlook.com
Webmaster	John Marshall	WA7BSR	623.334.2583

Web Site: <http://azqcwa.org> Email: [azqcwa@gmail.com](mailto:azqcwa@gmail.com).  
DUES: \$7.00/year and current national QCWA membership.

### MINGUS MOUNTAIN REPEATER GROUP

Meetings are held twice a year, an annual board meeting in Phoenix and a picnic meeting in Chino Valley. Dates, times, and locations are announced in the newsletter.

President	Bob Sitterley	K7POF	928.636.2146
Vice President	Ray Tyrrell	N6MY	n6my73@gmail.com
Treasurer	Linda Sitterley	W7POF	mmrginc@gmail.com
Secretary	Lori Cripps	WA7EDI	602.955.7517

Web Site: <http://www.k7mrg.org>. DUES: \$20.00 per year, due prior to July 1. MEMBERSHIP YEAR - July 1 - June 30.

### MARICOPA AMATEUR RADIO ASSOCIATION

The Maricopa Amateur Radio Association (MARA) meets the **FIRST SATURDAY** of each month at 9:00 a.m. at Maricopa PD Community Room, 17985 N Greythorn Dr. in Maricopa.

President	Steve Miller	W6SDM	602.290.1603
Vice President	Chris Canevit	W7CGC	
Secretary	John Wiltberger	NO7IN	
Treasurer	Curt Steger	NA7CS	520.568.9471
Board Members:	Steve Miller	W6SDM	602.290.1603
	David French	N7FAN	480.430.9426
	Bob Howard	W8RH	520.709.6176
	Curt Steger	NA7CS	520.568.9471
	Ronald Beasley	KG7MUV	520.568.4880
PIO:	Steve Miller	W6SDM	602.290.1603
Webmaster:	David French	N7FAN	480.430.9426

The Maricopa Amateur Radio Association is a 501(c)(3) non-profit organization. DUES: \$25.00/year individual, \$30.00/year family. Apply on-line at [www.copahams.org](http://www.copahams.org). Mailing address: P O Box 951, Maricopa, AZ 85139

### WEST VALLEY AMATEUR RADIO CLUB

The West Valley Amateur Radio Club is an Arizona 501(c)(3) non-profit corporation. Meetings are the **FIRST MONDAY** of each month at 7:00 PM in the St Clements Catholic Church Social Hall located at 15800 Del Webb Blvd., Sun City. The board meets the third Tuesday of the month at Lou's Trivoli Gardens, 12535 W Bell Rd, Surprise at 7:00 PM. The Emergency Preparedness Group meets the third Monday of the month at 7:00 PM at Boswell Hospital. Club nets are held on 147.300 (tone 162.2) at 9:00 AM daily and Monday - Thursday at 8:00 PM. The preparedness net is held the last Friday before the monthly Monday night meeting at 8 pm on the NY7S repeater 147.300 MHz, Tone 162.2 Hz. A weekly breakfast is held on Thursdays at Lou's Trivoli Gardens, 12535 W Bell Rd., at 7:00 AM.

President	Jim Rogers	N7YTI	623.214.9219
Vice President	Harry Scholz	AF7UT	623.878.0587
Secretary	Sharon Blaylock	KI7DOK	623.584.6974
Treasurer	Geoff Bock	KB7QFP	708.723.7757
Club Directors:	Bob Paul	KG7FIL	623.252.0149
	John Siepmann	N9NA	623.266.8333
	Tom Connor	W7TLC	623.444.7956
	Nancy Collins	KG6QWW	623.398.5286

WVARC, P O Box 1573, Sun City, AZ 85372-1573. DUES: \$15.00/YR for family residing at the same address. MEMBERSHIP YEAR - January - December. Web Site: <http://www.westvalleyarc.org>.

### SUPERSTITION AMATEUR RADIO CLUB

The Superstition Amateur Radio Club meets at 7:00 p.m. on the **THIRD TUESDAY** of each month (except December) at the Charles K Luster Building, 640 N. Mesa Drive, Mesa (use the glass door on your left at the main entrance). Visitors are welcome. Board meetings are held at 6:30 p.m. on the second Tuesday of each month (except December) at Black Bear Diner, 1809 E. Baseline Road, Gilbert.

President	Steve Estes	KB7KWK
Vice President	Jeff Machesky	K7ZLX
Secretary	Brent Butler	W7FK
Treasurer	Douglas Mitchell	W7ADD
Board Members:	Andy Keels	KD4ABB
	Don Rollock	W2EUL
	Charlie Brown	NJ7V
	Dale Schmidt	N7QJK
	Dan Karnes	W7TWR
	Jeff Heinze	N7CCW
	Larry Fort	AB7C

Superstition ARC, 5155 E Eagle Dr #21522, Mesa, AZ 85277. Web Site: [SuperstitionARC.org](http://SuperstitionARC.org) and [SuperstitionSuperFest.org](http://SuperstitionSuperFest.org). The Superstition Amateur Radio Club is a 501(c)(3) non-profit organization. For club information, please send email to: [Communications@SuperstitionARC.org](mailto:Communications@SuperstitionARC.org).



## ADAW Member Clubs

### MARCA, Inc. / W7MOT

MARCA is an Arizona 501(c)(3) Non-Profit organization. The club call sign in W7MOT. Membership is open to all amateur radio enthusiasts. Meetings are held the **THIRD TUESDAY** of each month at 6:30 p.m. at Denny's Restaurant located at 825 S 48th Street in Tempe (SE corner of University & 48th Street). Monthly presentations cover a broad spectrum of interesting subjects. Visitors are welcome to attend. Come early for dinner and socializing. Repeater Problem Reports are encouraged. A Repeater Problem or Comment Reporting is available at <http://www.w7mot.org/index.php/repeaters/report-a-repeater-problem>. Site Managers and officers will take reports for any W7MOT repeater. Contacts are found on website. Club activities include providing voice, aprs, packet, DStar, and Fusion repeaters Central Arizona; ARRL Field Day, special interest groups in SDR, APRS, antennas, digital modes.

President	Norm Johnson	AA7OO	480.278.2886
Vice President	Dave Hall	N7ZPY	
Secretary	T D Kennard	N7ISR	
Treasurer	Don Aldridge	WA7RLL	
Director	Bill Hosking	W7JSW	
Director	Dusty Morris	W7ITM	
Trustee:	Norm Johnson	AA7OO	480.278.2886
Webmaster:	Norm Johnson	AA7OO	480.278.2886

MARCA, Inc., PO Box 28246, Tempe, Arizona 85285. Membership dues \$25 annually. See our website (<http://w7mot.org>) for more information about meeting schedules, membership, repeaters, library, and club activities.

### ARIZONA REPEATER ASSOCIATION, INC

The Arizona Repeater Association general meeting is held the **FOURTH THURSDAY** of each month at 7:30 p.m. There are no meetings in July and December. The November meeting is held the Monday before Thanksgiving. Meetings are held at Denny's Restaurant, 825 S 48th Street, in Tempe, near SR 143 and University Drive. Visitors are welcome. Come early for food and social time before the meeting starts. For further information about the ARA, including repeaters, site status, and the tech/board meeting, please visit our web site at [www.w7ara.org](http://www.w7ara.org).

President	Virgil Silhanek, K7VZ	k7vz@w7ara.net
Vice-President	Brian McCarthy, AK7F	ak7f@w7ara.net
Treasurer	Erv Heimbuck, K0OTZ	k0otz@w7ara.net
Secretary	Jim Hoff, N7XXX	n7xxx@w7ara.net
Board Members:		
	Lance Halle, KW7LH	kw7lh@w7ara.net
	Dennis Bietry, KE7EJF	ke7ejf@w7ara.net
	Doug Pelley, WB7TUJ	wb7tuj@w7ara.net
	Joe Godfrey, AE7JG	ae7jg@w7ara.net
	Dennis Campbell, AE7WU	ae7wu@w7ara.net
	Mike Montalvo, KF7MBK	kf7mbk@w7ara.net
	Marty Dusenberry, KE7DGP	ke7dgp@w7ara.net
	James Wasson, N7ELL	n7ell@w7ara.net

For Membership Information, contact (Mike Montalvo, KF7MBK membership@w7ara.net) Arizona Repeater Association, Inc, P. O. Box 35758, Phoenix, Arizona 85069-5758. To join or renew, please visit <http://w7ara.org/mbr/Membership.aspx>. DUES: \$18.00/yr. (Jan. 1 through Dec. 31) with a one-time initiation fee of \$10.00. Life and family memberships are available.

### YAVAPAI AMATEUR RADIO CLUB

The Yavapai Amateur Radio Club meets the **FIRST THURSDAY** of every month at the Mile High Middle School located at the end of W Carleton Street west of Montezuma Street (visit web site at [www.w7yrc.org](http://www.w7yrc.org) for directions and map). YARC is an ARRL Special Service Club dedicated to public service and emergency preparedness. The club serves the quad cities area of Prescott, Prescott Valley, Chino Valley/Paulden, and Dewey/Humboldt.

President	Kathy Laing, KJ6KMK	president@w7yrc.org
Vice-President	John Stevens, AB9JS	vice_president@w7yrc.org
Secretary	Sandy Mattsen, K9WIZ	secretary@w7yrc.org
Treasurer	Mike Reid, N7IEP	treasurer@w7yrc.org
Past President	Frank Bender, K8FB	k8fb@w7yrc.org
Board Members	Art Jackson, KA5DWI	ka5dwi@w7yrc.org
	Rex Mauldin, N7NGM	n7ngm@w7yrc.org
	Art Protas, KG6AY	kg6ay@w7yrc.org

Yavapai Amateur Radio Club, P O Box 11994, Prescott, AZ 86304-1994. DUES: \$20.00/yr. Visit the website at [www.w7yrc.org](http://www.w7yrc.org)

### ORO VALLEY AMATEUR RADIO CLUB

The Oro Valley Amateur Radio Club meets the **THIRD FRIDAY** of each month at 7:00 p.m. at Ascension Lutheran Church located at 1220 W Magee Road in Tucson. (June is normally Field Day. December is annual Christmas Party and date and location varies.) Visitors are welcome. Board Meetings are held at 9:00 a.m. at the Oro Valley PD Substation EOC on Tangerine Rd (next to WalMart) in Tucson. Check the web site at [www.tucsonhamradio.org](http://www.tucsonhamradio.org) for dates.

President	Steve Wood, W1SR	president@tucsonhamradio.org
Vice-President	Fred Bresani, W2HZ	vicepresident@tucsonhamradio.org
Secretary	Carl Foster, KB7AZ	secretary@tucsonhamradio.org
Treasurer	Hanna Eckert, KG7TPD	treasurer@tucsonhamradio.org
Board Members	Ross Eckert, K4WBR	
	Scott Boone, K7ADX	
	Gary Pierce, WE7GP	
	George Cooley, NG7A	
	Marnee Dearman, KG7SIO	

DUES: \$25.00/year (Household members living at same address \$15.00 each additional). To join or for additional information, visit website at <http://www.tucsonhamradio.org/>.

### MESA COMMUNITY COLLEGE AMATEUR RADIO CLUB

The Mesa Community College Amateur Radio Club meets the **FIRST and THIRD MONDAY** of each month at 7:00 p.m. at Mesa Community College located at 1833 W Southern Avenue in Mesa. The meetings are held in the Technology Center Building 50, Room TC414 on campus. Every other meeting focuses on beginner topics to assist members in testing for the Technician license. All are welcome to join and there are no membership dues or requirements other than only MCC students may vote and hold club officer positions.

President	Charlie Brown	NJ7V	nj7v@arrl.net
Vice President	T.D. Kennard	N7ISR	n7isr@yahoo.com
Senator	Victor Valderram		vicau50911@maricopa.edu
Secretary	Robert Swanson		robswanson30@yahoo.com



## ADAW Member Clubs

### CENTER FOR AMATEUR RADIO LEARNING

The Center for Amateur Radio Learning is a hands-on amateur radio station, W7ASC, located within the Arizona Science Center at 600 E. Washington, Phoenix. Board meetings are held the last month of each quarter at the AZ Science Center. Annual meeting for all volunteers is held the **THIRD SATURDAY** of January. Watch ADAW for details.

President	Jack Landon	KD7ROB	480.759.5195
Vice President	Jim Felkey	N7BBS	480.966.7084
Secretary	John O'Neal	K7IP	480.961.1109
Treasurer	Karen McConaghy	NO7D	602.799.7338

**Board Members:**

Jean W4CIH	ADAW, Publicity
Steve WB4ZSC	Tech/IT, CARL/ASC Interface
Fred K9TOS	Logbook/QSLs
Tom K9TOS	At Large
Sam N7INV	Scheduling
Dave W7PMD	Hamfests
John K7JP	Teacher Packets
Bob KG7QJ	Classes, ASC Contact

*Web Master, ARCA Rep - Roger Buel, W9NCQ - 602.493.7242*

*For information: Email to [carl@w7asc.org](mailto:carl@w7asc.org) or call Jack, KD7ROB at 480.759.5195. Web Site: <http://www.w7asc.org>*

### CENTRAL ARIZONA DX ASSOCIATION

The Central Arizona DX Association meets the **FIRST THURSDAY** each month at 7:00 p.m. (except for January Awards Banquet) at the PERA Club, located at 1 E Continental Drive in Tempe. Visitors always welcome. See [www.cadxa.org/meetings.html](http://www.cadxa.org/meetings.html) for a map. The May meeting is an outdoor barbecue at 6:00 p.m. (reservations required).

President	Lee Finkel	KY7M	<a href="mailto:ars-ky7m@cox.net">ars-ky7m@cox.net</a>
Vice President	Fred Hoffert, III	NA2U	<a href="mailto:cwman1@aol.com">cwman1@aol.com</a>
Secretary	Bill Poole	AA4Q	<a href="mailto:bill@poole.com">bill@poole.com</a>
Treasurer	Alton Chaney	W7ACX	<a href="mailto:w7acx.480@gmail.com">w7acx.480@gmail.com</a>
Past President	Tom Kramer	NQ7R	<a href="mailto:tkramer@azci.net">tkramer@azci.net</a>
Board Members	Larry Loen	WO7R	<a href="mailto:lwoen@gmail.com">lwoen@gmail.com</a>
At-Large	Mickey LeBoeuf	K5ML	<a href="mailto:k5ml@arrl.net">k5ml@arrl.net</a>

*CADXA, P.O. Box 24616, Tempe, AZ 85285-4646. Email: [cadxa@cox.net](mailto:cadxa@cox.net). Dues are \$25 per year (\$12.50 per additional family member). For more information, DXing resources, and a membership application, visit our website: [www.cadxa.org](http://www.cadxa.org).*



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<b>ADAW WEBSITE</b>		<a href="http://www.adaw.org">www.adaw.org</a>



**Please be sure your club has your current email and/or mailing address.**

The *Arizona Desert Aire Waves* is published monthly and is the official news media of the sponsoring clubs. All news items, articles and inquires should be submitted to each club's editor. Any information and opinions printed herein are those of the contributors and are not necessarily those of the sponsoring clubs. Full permission is granted to quote from this publication providing credit is given to the individual contributor and the ADAW. ALL RIGHTS RESERVED.

**Deadline is 10th of the month**

## From The Editor's Desk

Can you believe it's November already? Time certainly flies, doesn't it?

As I write this, it is not yet the end of October and the 2017 ARRL Arizona State Convention/CopaFest is still a week away. So, can't report on it just yet. Check back next month for all the details - it's promising to be great. Better yet, travel on down to Maricopa on October 28<sup>th</sup> and check it out for yourself.

November brings a couple of great events to Arizona. On the 11<sup>th</sup>, the Oro Valley Amateur Radio Club will hold it's annual hamfest at the Marana Middle School in Marana. Gates open at 7:00 AM (5:00 AM for sellers) and the event closes at 1:00 PM. There is a \$5 admission charge, but there is lots to see, do, and buy. You won't be disappointed. Make plans to attend. You'll enjoy it.

The Hassayampa Amateur Radio Klub will hold it's annual HARKfest on November 18<sup>th</sup> at North Ranch Escapees RV Park on south highway 89 in Congress. Swapping is from 8:00 AM until Noon. There is no admission or charge for tailgating, although pre-registration for a site is required. Overnight camping, both dry and full hookups, is available with reservation through the park. An arts and crafts show will be held in the activity center from 9:00 AM until 2:00 PM and lunch will be served as well. This is a great event that is getting larger each year. Check it out!

With Thanksgiving just weeks away, I would like to take the opportunity to thank our club editors for their dedication. Penning an article each month can be difficult, but our club editors do a wonderful job. Thank you to our advertisers. Their support helps to make ADAW possible. A special thanks to each of you - our readers. Without you, there would be no reason for ADAW to exist.

As you gather with your family and friends this Thanksgiving, please take a moment to remember all those whose lives have been so tragically affected by hurricanes Harvey, Irma, Katia, Maria, and Nate, the devastating wild fires in California, and the earthquakes in Mexico and other parts of the world. If you are a praying person, offer up a prayer that they are granted strength to weather this storm and rebuild.

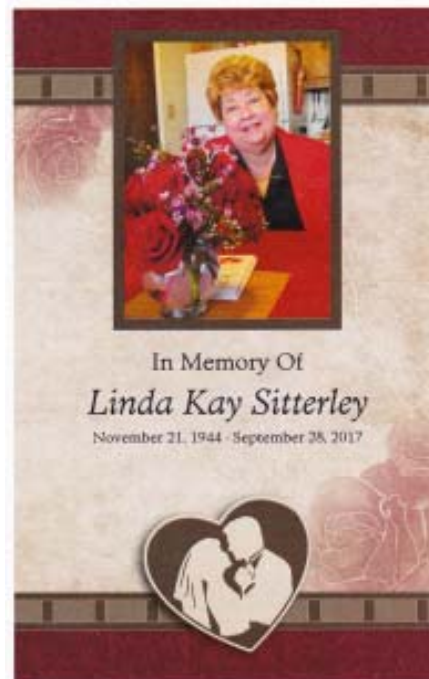
Have a very Happy Thanksgiving!  
Chris, N7PVL



ADAW



We will all miss Linda Sitterley, who is now a silent key. Bob Sitterley, K7POF, gives us some insight into Linda's ham radio activities:



It is with great sadness that I have to announce the passing of my dear wife Linda, W7POF, who passed away early Thursday, September 28. Linda had been fighting a terminal disease for the last several years. Linda had no interest in ham radio when I met her. Her only connection was her sister, Vickie Roberts, KC7PHY SK, and Vickie's husband, Jerry Roberts, KB7CN. However, after we met, she found many friends both with the Mingus Mountain Repeater Group and through our personal picnic called the Caliche Caper. Linda received her tech license in 2006 and her general license in 2008. She didn't get on the radio much, but she enjoyed our ham friends and their spouses. We will all miss her smiling face.

88, Linda, from your loving husband, Bob.

ADAW



With sadness we report the passing of Linda Sitterley, W7POF, the wife of Bob Sitterley, K7POF. She passed away early Thursday, September 28. Linda had been fighting a terminal disease for the last several years. Linda had no interest in ham radio until Bob met her. However, after that she found many friends both with the Mingus Mountain Repeater Group and through their personal picnic called the Caliche Caper. Linda received her tech license in 2006 and her general license in 2008. She didn't get on the radio much, but she enjoyed their ham friends and spouses. Linda and Bob have attended most of our club's Christmas Dinner meetings as they are members of AARC.

Our club donated a ham for the potluck lunch that followed Linda's Celebration of Life Service. The Service was held at the Sitterley's home. Pastor Dan Crouch, KF7DC officiated and photos of Linda scrolled on the large monitor adjacent to him as shown in the photo at the bottom of the column. Tomy, KF7GC did the AARC a favor - he bought a ham and delivered it to Bob. Tomy is being reimbursed by the club. Bob told us that 100+ attended Linda's Celebration of Life, and the ham was good and was completely consumed at the event.

Tentative plans are being considered for a November 11 AARC outing near Marana to use our new smoker grill. Some of us are planning to spend a few nights in our RV's as well as attend the Oro Valley Hamfest. All are welcome. Just bring a dish and join us. Details will be listed on the AARC web site ([www.w7io.org](http://www.w7io.org)) as they become available.

The Arizona Amateur Radio Club now owns two solar modules which will be a big asset during future field days since we will not need the use of generators, except as a possible backup. The modules are approximately 40" x 69" x 1.25". They are 275 watts and weigh 40 pounds each. Mark Kesauer, N7KKQ and Frank Engstrom, KB7IQ found them, and Mark brought them to Phoenix from Sacramento. Take a look at the photo of these modules in the next column.

—Lori



The start of Fall classes is just around the corner for Mesa Community College, with the first day of class coming on Saturday, August 19th. The MCC club will resume meetings on the 21st of August. Our focus at this first meeting will be creating a plan for recruitment of new members and generating interest in our board elections which will be on September 18th.

In July, the MCC ARC joined the Superstition ARC for Field Day by participating at their in-town location at Mountain View Park in Mesa, AZ. Temperatures soared to 112 in the afternoon but we stuck with it and enjoyed getting on the air and socializing.

Last month the club purchased a new Icom IC-718 with a grant from ARCA which was awarded way back in 2009. We are very grateful to ARCA for their generosity. We have big plans this year, hoping to use the radio to participate in the October School Club Roundup and several other events. We also installed a T-734 antenna on the roof of our building. With the antenna and radio, we finally have a modern amateur radio station for MCC students to use.

Finally, I want to remind all the readers that MCC alumni are invited and welcome to join our club. There are no dues or other requirements. The only stipulation for membership is that members of the club can only vote if they are attending classes at MCC, so all are welcome. We hope to see you at the next meeting.

Charlie NJ7V  
MCC ARC President

**ADAW**



*Pastor Dan Crouch, KF7DC  
at Linda Sitterley's Celebration of Life*



*AARC's new Solar Modules*





## MARA Continued from Previous Column

In 2010, hams in the Maricopa, Hidden Valley, and Thunderbird Farms area would converse via mobile radio on their way to work in the morning. The long drive up 347 was made shorter by a friendly conversation over the air. It was also very practical because accidents on 347 happened several times each week. When they did happen, the whole road shut down and if you didn't have prior knowledge of where the accident was, you got stuck in the gridlock that could last for hours. Hams had the advantage of being given a heads up so that they could take an alternate route.

Those of us who conversed each morning started meeting for breakfast one Saturday each month. The regulars got the nickname, "The Breakfast Club" after the 1985 movie about five teenagers on detention. We met at fine establishments like the Raceway Bar and Grill in Thunderbird Farms or the Duke in Maricopa on the Ranch El Dorado golf course. As time went on, there was talk of starting a formal amateur radio club.

Our get-togethers moved from the restaurants to the community room at the public library, which proved to be way too small after a year of meetings. We moved back to the Raceway as more members started attending. We formally incorporated the club in 2013 as a nonprofit corporation and most of our founding members became board members. We also affiliated the club with the ARRL and joined ARCA.

We managed to locate an even bigger meeting space at Barro's Pizza. They were gracious enough to open up a half hour early to let us get started with our 9:00 AM meetings. However, it didn't take long to outgrow this area either, especially when we had video presentations where the projector needed to be a certain distance from the screen.

Since getting or upgrading a ham ticket meant the long drive to the Phoenix Metro area to take an exam, we started doing local VE testing. We have dozens of members who got certified as VEs and started holding exam sessions at each of our meetings plus doing exams pretty much on demand. One of our members held ham radio classes for our local CERT group and got several people licensed though that effort.

We have held Field Day each year that we've been in existence. Some have been local and others have been in the high country. For many of our members, it was the first time they have attended a Field Day event.

Our latest acquisition is the community room at the Maricopa Police Department Emergency Operations Center. This facility seats 70 and is equipped for presentations.

*Continued Next Column*

Somewhere along the line, we gathered enough money, purely from member donations, to acquire three Yaesu System Fusion repeaters. Our main repeater site was at Central Arizona College in Maricopa and covered most of our membership area. The repeater was up for about two years before it came down because there were no formal agreements with the college. We managed to get that all resolved and we're awaiting final reinstallation to bring it back online, along with a companion 70 cm. repeater. Our third repeater will be located out at Thunderbird Farms atop one of the new water towers. These repeaters will give our remote area local coverage for day-to-day traffic and also be available if they're ever needed for an emergency.

And then came the hamfests. We knew it was unrealistic to depend on club donations for our funding. Our first hamfest was three years ago and, despite our novice attempt, was pretty successful. The next hamfest in 2016 was also the ARRL State Convention, as is Copafest 2017 this year. One thing that makes this hamfest different than many others is that we must rent the facility. It's always a gamble that we will be able to cover our setup costs. All of our hamfests have been ARCA sanctioned.

Ham radio clubs don't just appear one day, they evolve. Amateur radio, being a subculture to start with, is conducive to those of us with similar interests getting together and comparing notes. It's a natural occurrence for hams to want to form groups and talk radio, whether it's a net on the air or a club meeting. It's in our DNA. When I was a kid, my mother told me not to talk to strangers, so I went out and got a ham radio license.




73,

Steve, W6SDM

visit my website and blog at [w6sdm.net](http://w6sdm.net)

follow me on Twitter <https://twitter.com/stevedmiller>

**ADAW**

<b>R.J. CARLI ENGINEERING CORP</b>			
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If anyone is considering a major radio shack, workshop, addition or going into business for yourself, I am offering professional Electrical, Mechanical and Plumbing Engineering services to radio club members at a 20% discount for residential property, and 10% discount for commercial property. Talking is always free.			





## ACTIVITY IN THE SHACK - AND A CALL TO ACTION

It has been really busy at the Shack. The last day of September and the first day of October saw the Free admissions days, courtesy of Fry Grocery. We have been advised that there were about 10k visitors on each of those days. W7ASC was, as you might imagine, hopping. Many volunteers, who normally worked other days, pulled on their purple shirts and came in to help. They were really needed! Throughout the day there was hardly a moment when the Morse code stations were quiet. The radios were active, demonstrating PSK31 or giving visitors a chance to chat on air. The Arizona on-air Ham community played an important part in the on-air activity. Well over 200 visitors to the W7ASC Ham shack. A Big TX to the nine Ham volunteers that helped out!

On a personal note, your faithful scribe's eyesight is getting pretty bad. If you find typos or gaps in the narrative, please be understanding! We try to send out a quality letter, but poor vision makes it difficult to be 100% successful. Thanks for tolerating these errors.

Last month we posed a serious question and invited responses. The flood of messages was, to be kind, underwhelming. There were none! You could go back to the last ADAW and find the question, but here is the short form.

If a person, a non-Ham, has a situation that requires communication assistance since they are out of cell phone range, how do they find a Ham? They might even be at home, trying to reach a loved one in a disaster area, (think Puerto Rico or any of the Caribbean islands) where commercial phone service is nonexistent, they would really like to ask a Ham to try. How do they find that Ham? The Ham community has a lot of capability, but it is largely invisible to the non-Ham community. How should we address that missed connection?

[Ed note: most all disaster nets will send messages OUT of the disaster area, but not INTO the disaster area]

No one will solve that problem for us. We never hear about Sky Warn on the news. All of our activities associated with the hurricanes are nicely described in ARRL newsletters, but those do not make it into the news. As a result, when legislation is under consideration, and it is viewed as only favoring hobbyists, there is no real community support.

Do you think that this should change? Who will step forward and start a really vigorous PR campaign that informs the non-Ham community that we are a real Public Service resource? Most of what we do today – this newsletter is not an exception – is, to use a really old cliché, preaching to the choir. That needs to change, or we will always be a hidden misunderstood group.

We, as Hams, need to work on our image! No one will do it

*Continued Next Column*

### *CARL Continued from Previous Column*

for us. If you spend a few shifts at W7ASC, meeting the public, one soon learns that we are essentially invisible, or worse, misunderstood. That needs to change, and only you can make that happen. That is a multi-step process. We will be walking through those steps in this, and succeeding, issues. This image repair requires action from all Arizona Hams, so pay attention.

First step is to become more visible. Keep in mind that we are a Public Service, but that appears to be a well kept secret. Wearing a Call sign hat does nothing for our image, as the public, generally, has not a clue as to the meaning. Great for Hamfests and club meetings, but does not contribute to the feeling that we are ubiquitous. Get a hat, shirt or jacket that reads something like "Amateur Radio Service." If you wish to add your call sign that will not hurt, but wear this everywhere. Perhaps that will, ultimately, inform the public who come into the Shack and act surprised that Ham radio still exists! Hams everywhere.

There will be more suggestions in future issues of the Newsletter. And your comments/ suggestions are always welcome.

Your scribe now steps off the soap box, and waits to hear from you.

73 de W4CIH

[jeanjol@hotmail.com](mailto:jeanjol@hotmail.com) 480-664-7353



*Preston, KC3AZB  
and  
John K7JP*



*Some of the crowd  
at W7ASC*

**ADAW**



*ARA Continued from Previous Column*

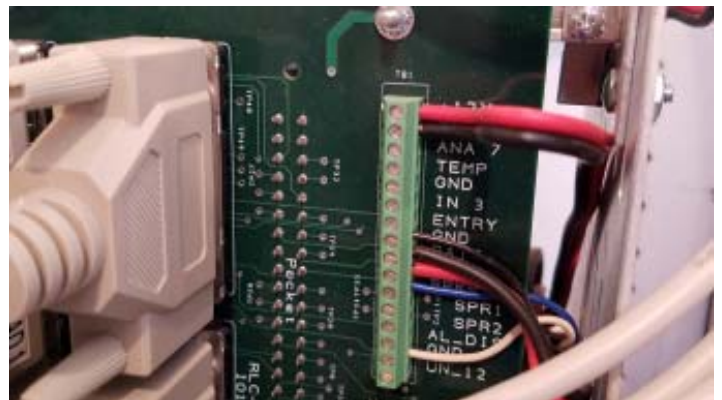
The FCC refers to Part 97 as Amateur Radio in the context of differentiating us from professional or commercial radio. Beginning with our basis and purpose, including “contribute to the advancement of the radio art” and “advancing skills in both the communication and technical phases of the art.” In the early years of Amateur Radio, most hams had to get out the soldering iron and homebrew their own receivers, transmitters, antennas, and other equipment. A new ham today is able to spend \$20-30 for a radio after passing element 2 and get on the air. With the bar of entry into our hobby being much lower/cheaper, has the art of homebrew gone away?



The original design of the card cage had slots where each radio card connected and the backplane interface was hand wired. This was a complex and time-consuming process to complete. There have also been problems over the years with wiring connections on the backplane. In the last few years, Gary AC7R did a wonderful job converting the hand wired backplane schematic to a PCB product. This allowed us to use standard serial cables between the controller and radios. The first site to be built with the new card cage and backplane was at Mingus Mtn. Since then, the Mesa repeater site has been updated to the new card cage backplane and plans to update several other sites are pending.



As you enter any ARA repeater site, you’ll first notice the repurposed Motorola commercial radios for the ham bands. We use commercially built antennas, filters, and repeater controllers as well. But, at the core of each system is the ARA card cage. This piece of equipment was designed and built by Cole AA7RD to interface between the radios and the repeater controller. Each radio is connected to a breakout radio card, which has potentiometers allowing us to adjust squelch, receive audio level, transmit PL deviation, and transmit audio deviation. There’s also dip switches where the PL and alternate PL are set and selectable by the controller. During site visits, we’re able to test with a switch by selecting normal mode, transmit off, and transmit on for each radio. Having the adjustments centralized on one card for each radio greatly improves site performance by allowing us to tweak settings on the card instead of on each radio or in the repeater controller.



The standard ARA repeater radio has been the Motorola Micor for many years. Beginning with the Usery Pass site, followed by Mingus Mtn. and link radios at Mt. Ord, we’ve begun using Motorola CDM radios. To interface the CDM radios into our sites requires using one radio for transmit and one for receive. They’re not quite as beefy as the Micor radios and can’t handle the duty cycle by default. Lance KW7LH performed extensive testing on the best way to keep the transmit radio cool and found that placing it upside down with a fan on top had the optimum result. He then fabricated a set of brackets to mount the fan to the radios.

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Arizona is the 6th largest state in the U.S.A. by land mass, covering 113,998 square miles. It's the 14th most populous state with an estimated population just less than 7,000,000. In 1912, it was the 48th state to join the union, only a few years before the ARRL was founded in 1914. There are currently 20,000 licensed Amateur Radio operators in Arizona, making up three thousandths (0.003%) of the total population. On a national level, representation for Amateur Radio operators comes from The National Organization of Amateur Radio (ARRL). In Arizona, many benefits are provided to affiliated clubs and their members by the Amateur Radio Council of Arizona (ARCA).

The Amateur Radio Council of Arizona (ARCA) is a statewide organization comprised of Amateur Radio Clubs from all parts of Arizona, working for the betterment of Amateur Radio. ARCA affiliated clubs present a unified front and have a means to exchange ideas and activities in the spirit of fraternity for which Amateur Radio is so famous. The objectives of ARCA are to combine opinions, ideas, and strengths of the various clubs; to assist the affiliated clubs in promoting the welfare of the Amateur Radio fraternity; and to encourage activities that will benefit the art of Amateur Radio.

Stop by the ARCA table at an upcoming hamfest. Attend one of the ARCA quarterly meetings. Support an ARCA affiliated club or make sure your club is an ARCA member. For more information, visit <http://www.arca-az.org/>.

-The ARCA Board of Directors

References

- <https://en.wikipedia.org/wiki/Arizona>
- <http://www.arrl.org/fcc-license-counts>
- <http://www.arca-az.org/>



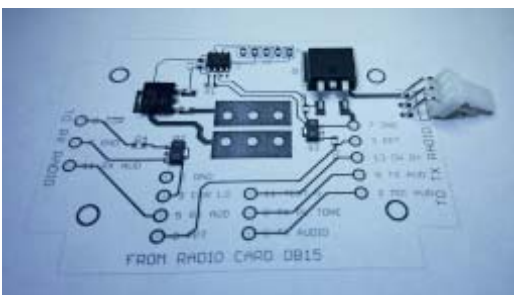
ARA Continued from Previous Column

While the art of home brewing might not be as prevalent as it once was, it still exists in the Amateur Radio hobby. Oftentimes there is a function or need for a device that doesn't have a product commercially available. Many hams are still able to customize or improve the performance of other devices as well. Are you an Amateur Radio operator that homebrews? If not, look for an antenna design to try, kit to build, or get involved with club projects. Building something by yourself can be very rewarding in the knowledge and skills you gain as well as the use of what you've created.

Virgil K7VZ  
ARA President



With fans mounted on the top of the CDM radios, we also needed a way to interface the radios to the card cage and control the fan. Initial fan control used a thermistor to turn the fan on when the radio heated up. Eventually, it was determined the fan should come on immediately when the radio transmits and stay on for 5-10 minutes after the radio is idle. Mike KF7MBK designed and built a PIC micro controller driven Y interface that connects from the power source and repeater controller to the fan, receive radio, and transmit radio. Without changing any other wiring at a site, we can replace a Micor with CDM radios and the splitter.



Continued Next Column





Okay, you've got your ham ticket. You've upgraded to General or even Extra. You've worked all 50 states, 100 countries, and every continent on the planet – and you've done all those things on five bands. What's next?

There are so many different facets of amateur radio that it's difficult to keep track of them all. DXing, contesting, rag chewing, EMCON . . . and the list goes on. If you're looking for another genre to add to your ham radio repertoire, consider Amateur Radio High Altitude Ballooning (ARHAB).

ARHAB combines a number of disciplines and skills into a public service activity that contributes to science and technology. Without ham radio, balloons sent into near space will simply burst when they reach altitude and then fall back to earth. There would be no way to track them on ascent or determine what altitude they reached before disintegrating. There would be no way to track re-entry and determine where the payload touched down so that it could be recovered. Essentially, the flight wouldn't yield much information.

As a high altitude flight ascends, amateur radio transceivers are sending back flight data such as altitude and rate of ascent which is copied by a ground station. Sometimes, depending on altitude, sun position, and cloud cover, the actual balloon burst can be seen with the naked eye. When it can't be seen, the only way of knowing that descent has started is by copying altitude information that's being radioed back to the ground station.

The position of the ascending balloon and the descending payload is beamed via APRS (Automatic Packet Reporting System) to the ground station and chase vehicles. As winds carry the payload many miles from where it was originally sent aloft, APRS beacons provide the breadcrumbs that will guide the ham radio-equipped vehicles to the recovery spot.

Many times the recovery area is in an inhospitable location that's only accessible by four-wheel drive vehicles. Our chase team, consisting of Land Rovers and Jeeps among other things, communicates on VHF simplex, coordinating with the ground station to arrive at the spot that the payload touched down. As a failsafe, our payload includes a CW beacon that will help guide the chase teams to the exact location.

Think of off-roading with an actual purpose to achieve, or fox hunting for something that contains valuable equipment and information. You don't need any special skills to participate in a high altitude balloon flight – just a desire to learn and help out on the cutting edge of technology.

*Continued Next Column*

## For Sale / Wanted



### PRICE REDUCED!

**Partly Restored Vintage Tube-type Transmitter - \$350**  
Baker Williams B&W 5100B AM/CW, 80-10m, 150w(2)6146's, has built in VFO and restored dial. Included is: Matching B&W 51SB-B SSB Generator (for ssb operation). Both will need new electrolytic filter capacitors. Interconnect cables (between 5100B and 51SB-B) included. Contact: Ray, W7GNE @ 480-540-4629.

### A-4 Antenna For Sale - \$450

This is an older model that does not have the stainless steel hose clamps on the elements. It is the same size and has the same features as the modern A-4S. The mast mount plate is new, and some of the elements have been replaced with stock A-4S parts. The antenna is stock - does 10, 15, & 20 meters. It does not have the 40 meter add on. It is boxed and ready to go now. Contact: Bob Howard, W8RH at 520.709.6176 voice/text or email [w8rh@live.com](mailto:w8rh@live.com).

The **West Valley Amateur Radio Club** has radios and ALL kinds of supplies available for sale through the club. We get some old equipment that won't sell that will be added to the items for free. Contact: Ken Jenkins, WB6MMV at [kjenkins5623@gmail.com](mailto:kjenkins5623@gmail.com) or Bob Kettler WA6MIO at [rdkettler@msn.com](mailto:rdkettler@msn.com).

### WANTED:

I am looking to purchase an alinco DJ-G29T 222/900 MHz Dual-Band HT. If you have one to sell, please contact: Larry Stafford, N7WBU, 3527 S Chesin Drive Tucson, AZ 85730-2319 -- email: [TFDFF@cox.net](mailto:TFDFF@cox.net)

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### ANSR Continued from Previous Column

Arizona Near Space Research is the organization in our state for high altitude ballooning. We are part of the Arizona Space Grant Consortium and our accomplishments include sending hundreds of flights into near space. These flights carry experiments constructed by students from colleges and universities across Arizona. In our most recent flight, we traveled to Wyoming at the request of NASA to obtain video of the 2017 solar eclipse.

If you're interested in being part of our group or just observing, you can find an application and more information at [www.ansr.org](http://www.ansr.org).

73,  
Steve, W6SDM

**ADAW**



### Arizona Red Cross Communications Club

4747 N 22nd St. - Suite 100 - Phoenix, AZ 85016

VHF – 146.84 MHz – PL 162.2 / UHF – 446.900 MHz – PL 131.8

Echolink Node #731289 – K7ARC-R

How exciting to finally have some DXpeditions to chase again. The past week has seen activity from Bhutan (A5A), Christmas Island (VK9XI), Temotu Province (H40GC), and Franz Josef Land (RI1F). All of these operations have spent time on the low bands — 40, 80, and 160 meters — which are of particular interest to me. I am off to a good start on 160m this season after working TZ4AM, H40GC, VK9XI, and RI1F for new ones. Hopefully more will follow.

We had a great turnout for the October meeting — about 45 in attendance for Fred Lloyd’s (AA7BQ’s) presentation on the birth and evolution of QRZ.com. As a regular user of the website, I was very interested in how it has developed over the past 30 years. When I had to sell some equipment for an estate a few months ago, I used the swapmeet feature of QRZ.com and was amazed at the speed of responses when I posted new items for sale.



AA7A and I are continuing to support and operate the Milt Jensen Memorial Station near Safford, AZ. Milt’s legacy lives on with the remote operation of his massive 8-Circle antenna for Top Band and a 4-Square on 80 meters. We are also working on installing a triband yagi at the site so we can use the site for general DXing and DX contests. Recently, our first attempt ran into a snag with a used antenna that refused to resonate on 20 meters as designed. We will troubleshoot the problem and hopefully figure out what is causing the problem before too long.

Bob Davies was appointed to chair the Nominating Committee and is working on a slate of officers and Board

*Continued Next Column*

I’m pleased to report we finally discovered the reason for our 2M repeater losing power. We’re now up to full power and soon, will have our new antenna and coax installed. Our next project after this one is to get new rotator cables installed and to get internet down into the Red Cross “Shack.”

We finally got our HF Winlink working, both at the Red Cross and in our ECRV (Communications Command Vehicle). It has been a struggle getting it all to work with our numerous HF and VHF/UHF radios. But now we have email capability at any remote site in the state.

We also have repaired a couple low-band VHF transceivers that the Red Cross uses for its communications needs. We were even able to talk to other chapters traveling to Houston to assist in hurricane relief. So must be 6M was open as well. Hope you made some contacts!

Your Humble Scribe,  
Mark, N7KKQ

**ADAW**

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#### *CADXA Continued from Previous Column*

members for next year. If you have an interest in serving on the CADXA Board, please contact Bob. If you are contacted by the Nominating Committee, I hope you will say “yes” and keep our momentum going as a leading DX club with an international reputation for excellence.

#### **Next Meeting on November 2<sup>nd</sup>**

Our next meeting will be on Thursday night, November 2<sup>nd</sup>, at the PERA Club, beginning at 7:00 p.m. The program will be “Digital DXing” presented by Larry Loen, WO7R, and a panel of CADXA’s digital DXers. For many years now, “digital DXing” was limited primarily to RTTY and PSK. That has changed dramatically in the past few years with the spread of WSJT modes initially developed by Joe Taylor for weak signal moonbounce work. Join Larry and the panel for a discussion of the latest technology and how it is changing the face and pace of DXing.

Please feel free to arrive early to socialize with your friends. Refreshments will be served at the break. Guests are always welcome.

73,  
Lee, KY7M  
CADXA President

**ADAW**



Emergency Communications Since 1961

**SHORT SKIP**

**ADAW**



**West Valley  
Amateur Radio Club  
High-Speed Multimedia  
Special Interest Group**

The West Valley Amateur Radio Club is starting a high-speed multimedia special interest and mesh networking group. If anyone is interested, please let me know.

Bob KG7FIL [kg7fil@arrl.net](mailto:kg7fil@arrl.net)

**ADAW**

**Real Estate**

*Are you or someone you know looking for a Ham Home? I can help you find a home with a tower or one where a tower can be added. Call or email me to get started.*

Richard Haworth W7MDQ  
Coldwell Banker Residential Brokerage  
602-370-1450 Cell, [rahaworth@cox.net](mailto:rahaworth@cox.net)

**Need Computer Help?**

*Computer consultant: in-home tutoring, problem solving, hardware and software installations, virus detection and removal. I am Patient and professional with 30 plus years in the computer field.*

Call Larry, KE7JXQ  
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1-888-922-9295 or 602-863-0502



November brings us to Election Season at the Thunderbird Amateur Radio Club. We encourage all members to come to the November general meeting. You'll get a chance to meet all the people who have volunteered to run for board or executive positions, and then vote for your choice. In addition, you'll learn about the bylaw changes and will find out what that means for the club in the future. So mark that spot on the calendar and let your voice be heard!

The Technician class has wrapped up. In the end we had about 12 people taking the course. Of those, eight got their license at the VE session immediately after the last class. A couple of people weren't able to make that, but had told us they wanted to join in at the regular VE session the Wednesday before the meeting. Congratulations to all the successful students, and thanks to all the teachers, VEs and organizers who helped them get there!

Hamfest season is starting up, and I'd be remiss if I didn't remind people about the TBARC hamfest coming up in January (Saturday, January 13, 2018 at Northwest Community Church, 16615 N. 43rd Ave, Phoenix). See the club website for more details if you're a vendor or just want to browse some great deals. Mark your calendars with the date, and join us for one of the most exciting hamfests in the Valley!

Have you been to a TBARC meeting yet? Why not stop by? We'd love to have you join us, and guests are welcome. Our meetings are held on the third Thursday of the month at the North Phoenix Campus of Northern Arizona University. It's near Greenway and I-17, starting at around 7:00 p.m. See the club website at [w7tbc.org](http://w7tbc.org) for directions. In November, we'll feature two things: first will be the election. After that, Darren Johnson AF7CO will be discussing Oscilloscopes. Do you need one? If so, what should you look for? Which is better, digital or analog? How many do you need to own before you can admit you have an addiction? Join us and find out!

Andrew Cornwall KF7CCC  
[kf7ccc@arrl.net](mailto:kf7ccc@arrl.net)

**ADAW**







The October club meeting was very well attended. David Yee, N7AJR, chairman of the election committee gave the members a pitch to become club board members. He mentioned the need for new people with new ideas. The election of club board members is next month.

The membership was treated to an outstanding presentation prepared by Chris Trimble, KG7FEG, on the wild life in the McDowell Sonoran Conservancy. Chris introduced Malanie Tluczek to the group as the curator of the Mule Deer corridor and habitat program. She spoke eloquently about the program. They had to capture the deer without injuring them. They used helicopters to net the deer. Then they placed special electronic collars on each deer. These electronic collars are expensive. The Gila River Indian Community donated \$100,000 to purchase 32 collars. Each collar was unique to each deer so they could track their habitat.

When the data is uploaded and placed on a map of the area, their movements are clearly shown. The program will last two years and next year these collars will be released from each deer. They will have a beacon and will need to be found. Sounds like a "fox hunt" doesn't it! Maybe the club can get involved in this recovery.

Speaking of fox hunting, the program for November is all about fox hunts and direction finding ham gear.

The weather is much better for outside activities, so the Ham in the Park will begin again on Friday morning, October 27th, at the Pima Park. The park is located at Thomas Road and North 87th Street. It is planned to continue every other week until the end of the year. For more information, send me an e-mail

The Club has a net every Tuesday at 7:00 PM on our repeater system. The repeaters are on 147.18 with a tone of 162.2 and on 440.00 with a tone of 100.00. Everyone checking in can give us a rundown on what they have been up to lately. Sometimes we have an interesting question for everyone. So set your clock for Tuesday's at 7:00 PM, and we will see you on the air. By the way, you will get a free raffle ticket for every time you check into the net. Use them at the club meeting raffle

Well, that's all I have for now. Be well and keep hamming.

Ed Nickerson WU7S  
enickerson427@aol.com



## Public Service Calendar

### Maricopa County Emergency Communications Group Events

EVENT	LOCATION	DATE
Heart of Arizona	Congress	11/04/17
JROTC First Water	N of Apache Junction	11/04/17
MS Walk on the Wildside	Phx Zoo/Papago Park	11/04/17
Phoenix Half Marathon	Downtown Phoenix	11/05/17
Cave Creek Cactus Classic	Cave Creek	11/11/17
Xterra San Tan Trail Run	San Tan Park	11/12/17
K's of Christmas Run	Freestone Park Gilbert	12/09/17
JROTC Shopies Flats	N E of Wickenburg	12/09/17
Scottsdale Half Marathon	Scottsdale Civic Center	12/10/17
Xterra-White Tanks	Waddell	01/07/18
Prickly Pedal	Cave Creek/Lake Pleasant	01/20/18
JROTC First Water	N of Apache Junction	01/27/18
Runner's Den Pancake Run	E Phoenix, Paradise Valley Mall	02/04/18
Xterra - McDowell Mtn	Fountain Hills	02/04/18
Black Canyon 100K	Spring Valley to the Emery Henderson Trailhead	02/17/18
Lost Dutchman Marathon	Apache Junction	02/18/18
JROTC Shopies Flats	N E of Wickenburg	02/24/18
Xterra Black Canyon Trail Run - Black Canyon City	Black Canyon City	03/11/18
Mesquite Canyon	Waddell	03/17/18
Tour de Cure	Midwestern University 59th Ave & Loop 101	03/17/18
Crown King Scramble	Lake Pleasant - Crown King	03/24/18
El Tour de Mesa	Mesa	04/07/18
March of Dimes March for Babies	Wesley-Bolin Park, Downtown Phoenix	04/14/18
Zane Grey 50 Highland Trail Run	Mogollan Rim on the Highline Trail	04/28/18

To sign up for an MCECG Public Service Event: [www.mcecg.net](http://www.mcecg.net)

For information, contact Dennis Bietry - KE7EJF at 602.274.3732 - email, [ke7ejf@cox.net](mailto:ke7ejf@cox.net), or contact the Event Coordinator for the event.

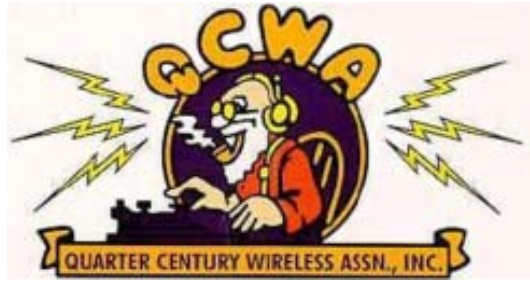
#### SARC CONSTANTS:

**SARC is a 501 (c)(3) club. That means all donations are fully tax deductible. Contact Paul Jorgenson, KE7HR at 602.992.8043 for information on estate donations and equipment pick-up.**

**For membership information, call Judy Jensen, KE7IXI at 480.773.8452. Please send address change requests to Judy no later than the 7th of the month in which you would like the change to occur.**



## Hamfest Calendar



### CHAPTER 16

#### BARRY M. GOLDWATER ARIZONA CHAPTER

Have you been a ham for at least 25 years? Then celebrate by joining the Quarter Century Wireless Association!

The Barry M. Goldwater Chapter 16 Arizona chapter has four lunch meetings a year with fabulous speakers. Check us out at <http://www.azqcwa.org/> we are also on Facebook at <https://www.facebook.com/AZQCWA>. We are always looking for speakers and great lunch locations. Let us know.

Tom Fagan, K7DF, President

QCWA Barry M. Goldwater Chapter 16 Arizona

[k7df\\_tom@yahoo.com](mailto:k7df_tom@yahoo.com)

ADAW

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#### *Hamfest Calendar Continued from Previous Column*

16-17 February 2018 - **2018 Southwestern Division Convention/Yuma Hamfest** - hosted by the Yuma Amateur Radio Hamfest Organization will be held at the Yuma County Fairgrounds, 2520 E 32nd Street in Yuma. Visit the web site at [www.yumahamfest.org](http://www.yumahamfest.org) for additional information.

1-2 June 2018 - **2018 Prescott Hamfest at ERAU** - hosted by the Eagle Amateur Radio Club at ERAU and the Yavapai Amateur Radio Club will be held at Embry Riddle Aeronautical University (ERAU), 3700 Willow Creek Road in Prescott. Hours are 7:00 AM to 4:00 PM on Friday and 7:00 AM to 3:00 PM on Saturday. Tailgating, Commercial Vendors, Youth Activities, Special Event Station, Prizes, Food Concessions, Seminars, DXCC Card Checking and more. Limited Free RV Dry Camping on Thursday and Friday nights (must pre-register). General Admission - \$5.00 good for both days. Full Time Student with Student ID and 12 years and under - Free. Tailgating - \$10.00 first parking space, \$5.00 each additional. Indoor Commercial - \$20.00 first table, \$10.00 each additional. Talk-In Frequency - 146.880 MHz(-) PL 100 Hz. For more information, visit the website at [www.prescotthamfest.com](http://www.prescotthamfest.com) or email Hamfest Chairperson - Frank Bender, K8FB at [k8fb@w7yrc.org](mailto:k8fb@w7yrc.org)

ADAW

11 November 2017 - **Oro Valley ARC Hamfest** - hosted by the Oro Valley Amateur Radio Club will be held at Marana Middle School, 11285 W Grier Road in Marana. Gates open at 7:00 AM (5:00 AM for sellers) and closes at 1:00 PM. Admission: \$5 (Children under 12 free with a paid adult). Valid Student IDs are also free. Sellers: \$10 per space and includes seller. Prizes, VE Session, Seminars, QSL Card Checking, Breakfast & Lunch Available. Talk-In: 146.620(-), 444.100(+), and 147.32(-) all PL 156.7. For information, visit the web site at [orovalleyarchamfest.com](http://orovalleyarchamfest.com) or contact Steve, W1SR at [w1sr@arrrl.net](mailto:w1sr@arrrl.net)

18 November 2017 - **HARKFEST Tailgate Hamfest** - hosted by the Hassayampa Amateur Radio Klub will be held at North Ranch Escapees RV Park, 30625 S Hwy 89 in Congress. Free Admission, Free Tailgate Sites (Pre-Registration Required - [djgrooms@yahoo.com](mailto:djgrooms@yahoo.com)) Overnight Camping (Full Hook-Up or Dry) Available (pre-registration required for camping at [www.escapees.com/parking/congress](http://www.escapees.com/parking/congress)) Tailgating permitted at campsite. VE Testing Available upon Request - Prizes Arts & Crafts Show 9 AM - 2 PM and Lunch at Activity Center

2 December 2017 - **Superstition SuperFest 2017** - hosted by the Superstition Amateur Radio Club will be held at Mesa Community College, 1833 W Southern Avenue in Mesa. Hours are 8:00 AM to 4:00 PM. Admission \$5.00 per person, children 12 and under free. Tailgate \$10.00 per space. Grand Prizes and Hourly Door Prizes. VE Testing - Registration from 8:00 AM until 9:00 AM, Testing begins at 9:00 AM. Pre-register at times listed. ARRL Card Checking. Special Events Station - K7A Commemorating the USS Arizona. GOTA Station. Fox Hunts. For more information, contact the SuperFest Chairman at [chairman@superstitionhamfest.org](mailto:chairman@superstitionhamfest.org).

13 January 2018 - **Thunderbird Hamfest** - hosted by the Thunderbird Amateur Radio Club will be held at the Northwest Community Church, 16615 N 43rd Avenue in Phoenix. Hours are 8:00 AM to 12:00 Noon. Open to Vendors at 7:00 AM. Vendors may set up Friday night after 5:00 PM. General Admission - \$3.00 per person. Vendor and Tailgate Swap - \$10.00 per parking spot. Seminars - Door Prizes. VE Testing from 10:00 to 11:30 AM. Snacks and Beverages will be available for purchase. Visit the TBARC web site at [www.w7tbc.org](http://www.w7tbc.org) or email [hamfest@w7tbc.org](mailto:hamfest@w7tbc.org) for additional information.

21-27 January 2018 - **QuartzFest** - will be held in Quartzsite. Hands-on Demos, Mobile Ham Shacks, Recreational Vehicles, EMCOMM Systems, Off-The-Grid Living, Alternative Energy, and Radio Education. Over a hundred Technical Seminars and Fun. For more information, visit the web site at [www.quartzfest.org](http://www.quartzfest.org).

*Continued Next Column*

## License Testing Information

When you are ready to take an exam for an Amateur Radio license, there are Volunteer Examiners available to assist you. Each Applicant will need to bring a picture ID (some test sessions require two forms of identification). If you are upgrading your class of license, be sure to bring the original (and a copy) of your license and/or Certificate of Successful Completion of Examination (C.S.C.E.). There may be a fee required.

**PLEASE NOTE:** Dates, times, locations, fees may change. Arrive promptly at time listed. Fees may vary and exact change or check is required at most sessions. Call test session contact to confirm information. Walk-ins are permitted unless otherwise specified.

### November Test Sessions

**Nov 2nd** - CARBA -- 7:00 PM

Lighthouse YMCA, 2900 N Columbus Blvd, Tucson

Contact - Matthew Grossman 520.750.7189

Pre-Reg by email preferred - [veregistration@rstclub.org](mailto:veregistration@rstclub.org)

**Nov 4th** - Venture Out -- 9:00 AM

Venture Out RV Resort, 5001 E Main St, Mesa

Contact - Robert Bingham 480.404.1408

No Walk-Ins

**Nov 4th** - DeVry ARC & WVARC -- 9:00 AM

DeVry University Library, 2149 W Dunlap Ave, Phoenix

Contact - David Morrill 623.680.5011

**Nov 6th** - WVARC -- 6:00 PM

St Clement Church, 15800 N Del Webb Blvd, Sun City

Contact - David Morrill 623.680.5011

**Nov 11th** - ORO Valley ARC -- 10:00 AM

Marana Middle School, 11285 W Gier Rd, Marana

Contact - Quinton Gleason [licensing@tucsonhamradio.org](mailto:licensing@tucsonhamradio.org)

**Nov 11th** - Venture Out -- 9:00 AM

Venture Out RV Resort, 5001 E Main St, Mesa

Contact - Robert Bingham 480.404.1408

No Walk-Ins

**Nov 8th** - Yavapai ARC -- 9:00 AM

Jeep Posse Bldg in Pioneer Park, 1200 Commerce Dr, Prescott

Contact - Donald Bauer 928.775.4690

**Nov 13th** - Radio Society of Tucson -- 7:00 PM

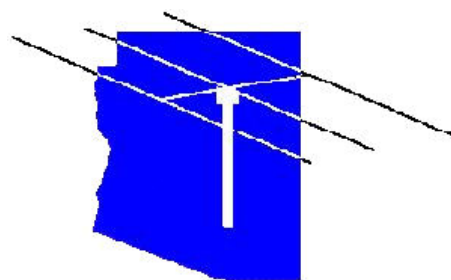
Hardesty Mid-Town Police Bldg, 1100 S Alvernon, Tucson

Contact - Diane Zimmerman 520.664.5070

**Nov 15th** - Thunderbird ARC -- 6:00 PM

Honor Health Medical Office Bldg, 19841 N 27th Ave, Phoenix

Contact - James Skinnell 602.826.1949



MARCA INC.

*No Report Received*

ADAW

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#### Test Sessions Continued from Previous Column

**Nov 15th** - Central Phoenix VE Team -- 6:00 PM

South Mountain Community College, 7050 S 24th St, Phoenix

Contact - Bill Martin 480.205.3625

No Walk-Ins - Limit Space - Contact Prior to Exam

**Nov 15th** - Hualapai ARC -- 10:00 AM

Northern Arizona Fire District, 2470 E Butler Ave,

#1 Fire Station Northern Ave, Kingman

Contact - Alyce Ingle 425.231.9173

**Nov 18th** - Venture Out -- 9:00 AM

Venture Out RV Resort, 5001 E Main St, Mesa

Contact - Robert Bingham 480.404.1408

No Walk-Ins

**Nov 19th** - Unsponsored -- 10:00 AM

Kingman Fire Station #1, 2470 E Butler Ave, Kingman

Contact - Daniel Miller 928.897.3883

**Nov 20th** - East Valley VE Team -- 6:00 PM

City of Mesa Utilities, 640 N Mesa Dr, Mesa

Contact - Fred Bollinger 480.242.8606

**Nov 21st** - Hassayampa AR Klub -- 9:00 AM

Club House Park Entrance, 30625 Hwy 89, Congress

Contact - Charles Carter 316.651.7710

No Walk-Ins - Must Pre-Register

**Nov 21st** - Boy Scout Troop 127 -- 8:00 PM

St Francis Xavier School Library, 4715 N Central Ave, Phoenix

Contact - John Kelly 602.264.6854

**Nov 21st** - Motorola ARC of Arizona -- 5:00 PM

Denny's, 825 S 48th St, Tempe

Contact - Edward Olague 602.885.7725

No Walk-Ins - Pre-Registration Required

**Nov 25th** - Arizona ARC -- 7:00 PM

American Red Cross, 4747 N 22nd St, Phoenix

Contact - Gary Hamman 602.996.8148

No Walk-Ins - Pre-Registration Required by Friday night

*Continued Next Column*





### November 21 General Meeting at 7 PM

Welcome to our club meeting! We will do our best to make you feel included and welcome, even if you have no radio license. You do not need to be a member to sit in with us, either. Members will vote this month for the 2018 Officers and Board, of which there are 11 seats to fill.

Emphasis will be placed on putting the final touches on the December amateur radio swap meet that we call a hamfest, and in particular, the Superstition SuperFest on December 2nd. We like to think of it as one of Arizona's best.

The meeting is at the Charles K. Luster Building, 640 N Mesa Drive, located 0.3 miles north of University Drive, on your left. The Charles K. Luster sign is a bold white sign at the parking lot entrance.

### 2.4 GHz Mesh Parameters Have Changed from 10 MHz to 5 MHz

The club mesh network has been growing now for a couple years or so, first using Broadband Hamnet firmware on Linksys routers on Wi-Fi Channel 1, which is a part of the 2.4 GHz ham band. We got out of the noisy environment of everyone's home network routers and moved to Ubiquiti-brand commercial routers that can be operated outside of the license-free Wi-Fi band which shares space with microwave ovens (2450 MHz). Operating with an amateur radio license is required down on Wi-Fi Channel -2 (2397 MHz with maximum 10 MHz bandwidth). Ubiquiti routers of certain model numbers can be flashed with firmware provided by Amateur Radio Emergency Data Network (AREDN).

The Mesh network now uses 5 MHz bandwidth for better signal-to-noise ratios, after using the 10-MHz bandwidth from our start of operation on Ch.-2. We become invisible to mesh nodes still using 10 MHz width.

Our routers are high up on a radio tower, or as high as we can get them for the widest coverage, with many using 2-ft dish (or larger) antennas, or tiny 15-element Yagis. We can reach as far as fifteen miles! Each node can display all of the nodes it can see, so everything it can see is available to you, if you can see it, and it sees you.

The network allows Internet-like services like email, streaming video, VOIP telephone and chat rooms, just to name a few. More information is available at the SuperstitionARC.org website.

*No Report Received*

**ADAW**

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### *Superstition Continued from Previous Column*

### **Club member Jane Allen, WB7FDF, a member since around 1977 or '78, will turn 100 in late November!**

Jane has contributed toward the club in many different ways - allowing the club to use some of her storage space, opening her home for club activities, including Field Day. She had a garage for another station and 1.25 acres of land for antennas, and her ham shack. She baked delicious goodies for us, too!

Jane served on our Board, served as President of the club for the year in which Dianne, KD7DJE got her license. I remember this because I can still hear Jane's gasp when Dianne was prodded by the VE team to read aloud a certificate that had some words that Dianne just does not use! (That certificate was all in fun, having to do with Dianne's achievement in getting her license!)

(May I add, Dianne went on to become Club Treasurer, and here was her report, verbatim: "We had some, we got some, we spent some, we still have some!" She followed that with the report on the books, of course.)

Jane, WB7FDF was voted in for Life Membership out of appreciation for her many contributions by the membership years before the days of the option to join with a paid Life Membership was available.

Jane now lives in an independent-living apartment and attends meals served down in the dining room. She is not active on the radio these days because she has a hard time making out call signs due to a hearing loss. Her cheerful voice still sounds the same on her new caption phone from days of old.

Happy 100, Jane!

Wishing you and yours a Happy Halloween if this reaches you that soon, and definitely a Happy Thanksgiving!

*Continued Next Column*

73 – Larry WB7C

*Continued Next Page*

# Old Pueblo Radio Club INTERMOD

## President's Column

No Report Received



### OPRC Repeaters

146.66 - PL 110.9	wide coverage	W7GV
146.82 - PL 110.9	wide coverage	W7GV

### RACES Repeaters

145.150	packet/wide	N7OEM
146.880 - PL 110.9	wide coverage	N7OEM
147.300 - PL 110.9	wide	N7OEM
448.55 - PL 110.9	wide coverage	N7OEM

It's a busy time of year and we're excited about all of the activities we have planned.

Our annual hamfest is just around the corner on November 11th. Of course November 11th is also Veterans Day and we're not kneeling down for this one. We have a local VFW Group coming to provide us with some proper recognition for our Veterans.

If you have been to our hamfests in the past, you've experienced the best in Southern Arizona. We will be at the Marana Middle School once again and have many tailgaters, vendors, and even more seminars than last year. We are all set and ready to go however there is one thing we can use: more donated ham radio related items. As we are a 501C3 organization, we can provide you with a receipt for any items that you might donate.

We are in the middle of a few changes and upgrades to our repeater system. Our D-Star repeater system is maintained through the club's D-Star SIG. The available coverage is quite good. We've had reports of travelers getting into the system from Nogales and north to Picacho Peak. Coverage to the east goes all the way to Benson and to the west, our Marana repeater has extensive coverage beyond Kitt Peak.

In November we will be celebrating the 60th year of the Arizona State Parks system from Oracle State Park on November 18th. It's a lovely park, little used, with nice trails and an interesting museum which was once the ranch house on the property. We have reserved the group site which offers two large picnic shelters with AC power, BBQ grills, rest rooms with running water, and an adjacent parking lot. We will be using special event callsign K7T on HF bands, CW, SSB, and PSK modes, and since Oracle State Park is a recognized entity in the WWFF program as "KFF-1063," we will be handing out that info for Parks on the Air hunters. In addition, we plan a barbecue lunch for all who attend until the food runs out. Admission fee for the park is \$7 per vehicle. Since the altitude there is around 4,000 ft, be prepared for cool weather.

The last quarter of the year also marks our membership season. We hope that current members and new members consider renewal and new members consider membership for 2018. There are several events and benefits for club members.

### Superstition Continued from Previous Page

#### Superstition ARC Repeaters

147.120 MHz (+) 162.2 Hz - Usery \*  
 448.275 MHz (-) 100.0 Hz - Usery  
 449.600 MHz (-) 100.0 Hz - East Mesa \*  
 KB7KWK-L Echolink Node 538499 \*

\* - Linked Full Time

#### Club Nets

**Morning Drive Time Net:** Mon-Fri, 7:00-8:00 AM - Trivia  
**City of Mesa CERT Team Monthly Net:** First Tuesday of month, 7:00 PM  
**Weekly 6 Meter Sideband Net:** Wednesdays, 7:00 PM on 50.140MHz, W7ASL-L EchoLink, and 145.575 FM Simplex  
**Club Business Net:** Wednesdays, 8:00 PM - Featuring Club News, Elmer Q&A and AR Newslines.  
**Mesh Information Net:** Thursdays, 6:30 PM  
**East Valley Swap Net:** Thursdays, 7:30 PM  
**National History Net:** Thursdays, 8:30 PM. Quizzes you on National History.  
**10-Meter Rag Chew:** Thursdays, 8:00 PM, 28.465 MHz USB  
**Morse Code Class Net:** Saturdays, 7:00 PM

**Club Membership** is open to anyone with an interest in Amateur Radio. Visit: <https://superstitionarc.org> for more information.

#### Superstition SuperFest

The Superstition SuperFest is held on the first Saturday of December. Visit [www.superstitionsuperfest.org](http://www.superstitionsuperfest.org) for the latest information.

ADAW



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\$600  
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### TS-990S | 200W HF + 6M Transceiver

- World's first dual TFT display • 200W output on all bands • ±0.1ppm TCXO ensures both high stability and reduced power consumption • Triple 32-bit DSP's dedicated to main/sub receivers and band scope • Main receiver employs full down conversion, new mixer & narrow band roofing filters • Third order intercept point (IP3) +40dBm for highest level of RX performance (main receiver)

**Call For Special Price!**



\$40  
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### TM-D710G | 2M/440 Dualband

- V-VV-U/U+U operation • Built-in GPS • Built-in TNC for APRS & DX-Cluster operation • 50W 2M & UHF • 1,000 memories • Dual receive • Green or amber backlight colors • Latest APRS firmware w/new features • Sky Command II remote functions

**Call For Special Price!**



\$250  
Kilobaud  
compare

### TS-480SAT/HX | HF + 6M Transceiver

- 480HX 200W HF & 100W 6M (no tuner) • 480SAT 100W HF & 6M w/AT • Removable w/front panel/speaker • DSP built-in

**Call Now For Low Price!**



NEW

\$300  
Kilobaud  
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### TS-590SG | HF/50MHz Transceiver

- Equipped with 500 Hz/2.7 kHz roofing filter as standard • ALC derived from TS-990S eliminating spike issues • Antenna output function (shared with DRV connector) • CW - morse code decoder function • Improved 1st mixer • New PFB key with multi-function knob • New split function enabling quick setting • LED backlight with selectable color tone



\$25  
Kilobaud  
compare

### TM-V71A | 2M/440 DualBand

- High RF output (50W) • Multiple Scan • Dual receive on same band (VxV, UxU) • Echolink® memory (auto dialer) • Echolink® Sysop mode for node terminal ops • Invertible front panel • Choice of green/amber for LCD panel • 104 code digital code squelch • "Five in One" programmable memory • 1000 multifunction memory

**Call Now For Your Low Price!**



\$40  
Kilobaud  
compare

### TH-D72A | 2M/440 HT w/extended RX

- 5W TX, RX 118-524 MHz, VxU, VxV, UxU • APRS w/built-in 1200/9600 TNC • Built-in GPS, Built-in USB, digipeater • Echolink® compatible, • MI-Spec STD810

**Call For Special Low Price!**



\$200  
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TS-2000

\$250  
Kilobaud  
compare

TS-2000X

### TS-2000/2000X | HF/VHF/UHF Transceiver

- 100W HF, 6M, 2M • 50W 70CM • TS-2000X 10W 1.2GHz • Built-in TNC, DX packet cluster • IF Stage DSP • Backlit front key panel

**Call For Special Price!**



\$25  
Kilobaud  
compare

### TM-281A | 2 Mtr Mobile

- 65 Watt • 200 Memories • CTCSS/DCS • MI-Std specs • Hi-quality audio

**Call For Special Low Price!**



### TH-D74A | 2M/220/440 HT w/D-STAR

- D-STAR compatible • APRS ready w/built in GPS • Color weather station information • Built-in KISS mode TNC • High-performance DSP voice processing • Standard compatibility for Bluetooth

**Call For Low Price!**



### TH-K20A | 2M Handheld

- 2M 5.5W • V0X • CTCSS/DCS/1750 Burst built-in • Weather alert

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- PHONE – Toll-free phone hours 9:30AM - 5:30PM
- FAX – All store locations
- ONLINE – WWW.HAMRADIO.COM
- MAIL – All store locations

KENWOOD

*The staff at HRO Phoenix would like to congratulate and wish Gary, N7GJ a happy retirement after 32 years of service with HRO!*

*Now serving you at our Phoenix store:  
Manager Mike KB6VHF, Steve W7QY, Mike K7DD, Jim K7EOG, Jim KE7EEU, and Laura KB6UHF*