

High-Country Static

December 2016

News and Information Concerning

Amateur Radio in Northern Arizona and

Welcome to the Coconino Amateur Radio Club (CARC) Monthly Newsletter. CARC is a non-profit club devoted to providing communication services to local volunteer agencies and events. Meetings are held the second Thursday of each month at the East side Sizzlers Restaurant Highway 66 at Fanning Dr. Flagstaff, at 7:00PM. All persons interested in amateur radio, whether licensed or not, are welcome to attend.

Coconino SkyWarn meets 1900 every Monday evening on the 146.98 repeater and at 1930 on the Navajo Mountain CACTUS repeater and 146.480 simplex.

Coconino ARES meets 1900 every Wednesday evening on the 146.98 repeater and at 1930 on the Navajo Mountain CACTUS repeater and 146.480.

Officers:

President: Tom Shehan KY7WV

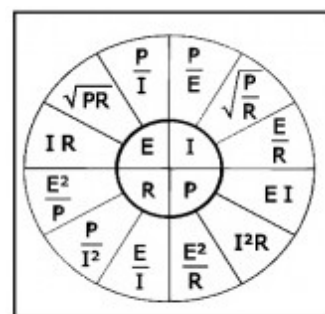
Vice-President: Sandy Meadowcroft KF4JHC

Secretary: Erv Perelstein, KE7QFI

Treasurer: Pat Traber, KE7QFG

PIO: Vacant

Newsletter: Janice Enloe, KI6WCK



E = voltage I = current
R = resistance P = power

Calendar of Events for 2016:

December: 11 Christmas party- Sandy and Bob Meadowcroft's home

News from the Sunday morning RACES net:

The Williams Hamfest is no more. During the December 3 meeting, the Amateur Radio Council of Arizona (ARCA) voted to suspend the Williams Hamfest indefinitely. Reasons given are declining attendance and the organizers are tired (organizing an event like a hamfest requires a huge amount of work). CARC will conduct the July license examinations in Flagstaff. Prescott will hold their hamfest the second weekend of June.

Thank you and Help Wanted:

Thank you to all who have run the Monday and Wednesday night nets:

Flagstaff: Tom KY7WV, Erv KE7QFI, Mike KD8RQV, Bob KF4RKS,

Page: Vince WB7UWW

If anyone one would like to help with the nets, please let Tom know. It is good practice for radio skills and the script is written for you to use.

Licensing Exams for 2017:

Remember to bring your HAM license and a copy (if you are upgrading your license), a government issued picture ID, a black ink pen, calculator with memory erased and fifteen dollars (exact change is appreciated).

January 2017

April 2017

May 2017: Overland Expo

July 2017:

October 2017:

<http://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp>

Arizona Newsletter: <http://www.arrl.org>

Tutorials: <http://www.arrl.org/tutorials>

http://www.arrl.org/exam_sessions/flagstaff-az-86004-1221-2

Next Business Meeting:

Our next business meeting will be January 12, 2017 at the East side Sizzlers at the corner of Highway 66 and Fanning. Dinner @1800 and meeting starts @1900.

Repeater Directories

ARRL has contracted publishing the Repeater Directory to rfinder (rfinder.net). This could be problematical: The ARCA repeater coordination committee (and other coordination committees) refuse to work with rfinder! Reasons:

Rfinder has exhibited poor accuracy in listing repeaters

Rfinder gives uncoordinated repeaters the same status as coordinated repeaters. There may be a surge of uncoordinated repeaters, which may result in considerably more interference among repeaters, especially in densely populated areas.

ARCA plans to publish an accurate list of coordinated Arizona repeaters on the Internet.

Thumbsat

CARC received a description of a satellite project for school students. The project involves buying a dongle and tracking antenna to download data from a satellite, downloading data, sending the data to the Internet, and, of course, making a donation to support the project.

The URL: <http://www.thumbsat.com/thumbnet>

It appears students could somehow use this data. Contact Joe, W7LUX for more information.

10 Meter Contest

The ARRL ten meter contest is 10-11 December. With low sunspot numbers F2 propagation seems unlikely, but sporadic E propagation on ten and six meters is common around the winter solstice.

<http://www.arrl.org/10-meter>

Minutes of the Coconino Amateur Radio Club

11/10/2016

Meeting Started: 19:00

Secretary's Report: Since the minutes of the October meeting were published in the newsletter, there was no need for Erv to read them. Mary Lou Hagan made a motion and Ken Held seconded the motion to accept the minutes as written. They were approved unanimously.

Treasurer's Report: Pat Traber, our club treasurer, gave the Treasurer's Report. The closing bank balance was \$3,864.71. Membership is 60 members, consisting of 56 paid members and 4 lifetime members. Pat told us that we received a \$300 donation (for Big Brothers Big Sisters 1/2 Marathon and the Soulstice Run). We also received \$500 from the AZ Trails Association, (for the Flagstaff to Grand Canyon 100 Mile Race). Since there was nothing additional for the Treasurer's Report, Erv Perelstein moved and Dawnelle Shehan seconded a motion to accept the Treasurer's Report. Unanimously accepted.

Guest Speaker: Joe Hobart was the Guest Speaker this month. Joe and Janice Enloe presented a slide show about HF Propagation which was an excellent review for most of us and very interesting.

President's Report: After member introductions, Tom introduced Mark Christian, the Deputy Emergency Manager for Coconino County, (as well as a CARC member). Mark gave us a review of the recently held Table Top Exercise. The disaster discussed was a Winter Storm. He reminded us that the biggest problem on almost all disasters is communications and one of our main problems is connectivity to the northern part of the state. Equipment has been provided by Emergency Management, but some of the HAM operators in the Page and Fredonia areas are unavailable for exercises/real emergencies. One solution would be to send operators from Flagstaff up there but Mark says his office cannot guarantee that funds would be available to volunteers for travel, room and board. The local Northern HAM operators would like to talk to the Town Councils after advertising in the local papers and TV for additional HAM's. They are still trying to work out a solution.

Vice President's Report: Sandy reviewed the preparations for the Girls-On-The-Run coming up on Saturday, 11/12. She asked all volunteers to meet at 8:00 am before heading out to their positions. We will be using the Mt Elden 146.980 repeater for the race which will start at 10:00 am. Sandy and Dawnelle are coordinating this event.

Old Business: Sandy reminded us that we still need a Public Information Officer (PIO) for the club, especially for Field Day and to keep our Facebook page up-to-date. Phil Brunner will continue to keep our web site up-to-date.

We have not yet found a replacement trailer for our club operations trailer. It seems that the \$2,000 limit we set on the trailer is just not enough. Ken made a motion to raise the limit to \$3,000. Mary Lou Hagan seconded the motion which passed unanimously.

Sandy updated us on the plans to hold another Technician License Class in the fall. The dates are March 11th, 18th, 25th, April 8th, 18th, 22nd, 29th and May 13th. Classes will be in the North Country Health Care Conference Room and we need to bring our own laptops. She will send us an email with all the details.

Tom brought up the subject of the AZ Trails Association's organization of the Flagstaff to Grand Canyon 100 Mile Race and noted that the race officials provided the best statistical data on bib numbers of runners in each category and bib numbers of runners not running. He said that Matt Nelson and his team were very well organized and kept him updated with changes very quickly. He once again recommended that we should make a check list so that when we discuss CARC requirements with other race officials, we can outline the type of information we need, similar to what was provided by the AZ Trails Association. Tom said he will put together a memo and distribute it by email so that we can all make suggestions or approve the document. If anyone has ideas on this subject, please email Tom. Several members commented that we should be firm about what we are NOT there to do: like First Aid, Sweeps and rides for injured competitors. He further recommends that when we are contacted by agencies needing communications assistance, we give them a copy of this document and negotiate an agreement with them.

Although Mike Clever, (the coordinator for the SKYWARN Appreciation Day at the NWS), was not present, Tom talked about support for this important event. We are still looking for additional HF operators to help with making contacts. Mike has offered to improve the antenna array to provide 80 m and 40 m connectivity. Anyone interested must bring their own radios and please contact Mike. Mike will be sending out an email with additional information soon.

Upcoming Project Review:

11/12 Girls-On-The-Run. Change of venue; will be held at Ft. Tuthill instead of Buffalo Park. Sandy and Dawnelle coordinating.

12/3 SKYWARN Appreciation Day at NWS. Mike Coordinating. Seeking HF operators for the NWS contesting.

12/11 Christmas Party, which will be held at the Meadowcroft home in Baderville on December 11th starting at 2:00 pm. She said that the club will pay for the meat and passed a sign-up sheet for members who will be attending and indicate what side dish, (no desserts please), they are bringing. Sandy will send an email with a map to her house.

2/?? Cameron Race, no further information has been received since last month.

New Business Tom requested that we think about what additional presentations we would like for our meetings and submit ideas by email so he can make a list and schedule these presentations. Please send suggested presentations to Tom.

Tom told us that the ORO Valley Amateur Radio Club has issued a challenge to us for the next Field Day. Ken mentioned that the Northern AZ DX Club also received a challenge from the ORO Valley Amateur Radio Club and would like to join with us at the 2017 Field Day event to accept the challenge. A discussion followed about what stations we anticipate for Field Day, including CW and Digital which get 2 points for each contact, and several SSB stations. We will continue discussion on this topic.

Tom told us about a very generous offer Bill Smith made to CARC. Bill is retiring soon and moving to CA and has offered to donate a tower, a Beam antenna and an antenna rotator to the club but they have to be removed by 11/15. Tom has put together an Antenna Demolition Committee which will work on the tower this Sunday. We had a short discussion about what we can do with this equipment. One option was to sell it, which may be the better option for us.

ARES Report: Joe said the ARA Repeater people successfully installed the old Station Master antenna on the 146.980 repeater and it is much more physically stable with a side mount brace to relieve some of the wind and ice loading on the antenna. All other repeaters in the area seem to be working this week.

Joe asked members to consider supporting our 2 nets, (SKYWARN on Monday and ARES on Wednesday), by taking Net Control duties. The more people who practice, the better real disaster nets will be. If anyone is interested, there are scripts available. Contact Joe for more information.

Joe and Janice brought the new back-up batteries for one of the repeater up to Mt Elden last week.

Joe said that the ARRL Southwest Vice Director paid CARC a compliment on our support to the SKYWARN Appreciation Day we have given the NWS in the past. He did this on an AZ State RACES net recently. Kudos to all who have been supporting this effort and hope we can continue.

Joe reminded us that the next Licensing Exams will be held on Jan 14th and again on April 15th, in the North Country Health Care facility, thanks to Bill Smith.

50/50 Raffle: Mary Lou won the raffle for the meter, Ken won the raffle for the 50/50 and Kay Perelstein won the drawing for a free Sizzler Dinner.

Adjourn:

Erv moved to adjourn, Joe seconded the motion. It was accepted unanimously. Meeting closed at 20:25.

Good afternoon,

As some of you may have already heard, as of yesterday I have accepted the position of Director for the Maricopa County Department of Emergency Management. Accepting this position and leaving Coconino County was one of the hardest decisions I have ever had to make. As a matter of fact, it took about two weeks of discussion with my family before arriving at this decision. What made this so difficult was the thought of leaving the northern Arizona emergency management and first responder community, which hands down has been the best, most committed group of men and women I have ever been fortunate to work with. It truly has been a pleasure being here these past years, and I will miss all of you greatly.

This said, I leave you with a highly motivated emergency management staff who are committed to continuing to move our multi-jurisdictional program forward.

For your reference, they are:

Mark Christian
Emergency Management Program Coordinator
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Ruthanne Penn
Emergency Management assistant

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Ashleigh Makuch
Emergency Management Specialist
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[928-679-7135](tel:928-679-7135)

Alan Anderson
Emergency Planner (part-time / volunteer)
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[928-679-7133](tel:928-679-7133)

Sonya Pedersen
Emergency Planner (volunteer)
spedersen@coconino.az.gov<mailto:spedersen@coconino.az.gov>

Ben Trumpinski
Emergency Management Intern
btrumpinski@coconino.az.gov<mailto:btrumpinski@coconino.az.gov>

Alan and Sonya have recently been working on school emergency planning. Ben, our newest NAU student intern, is assisting Ashleigh on Continuity of Operations Planning. If you need anything, Mark, Ashleigh, Ruthanne, Alan, Sonya, or Ben would be more than happy to help you out.

My last official day will be January 6th, so in the meantime, we'll be working hard to make sure that the transition is smooth with as little disruption as possible. I'll be keeping my cell phone number for a while, so you can reach me there or at rowley.rob@gmail.com<mailto:rowley.rob@gmail.com>

Thanks to all of you again, and I'll only be one county away to the south.

Merry Christmas!

Rob

Suggestions for Winter Storm Preparedness:

Medications	CERT Bags and First Aid kits - ready
Roof rake if applicable	Food and water stored and ready
T.P.	Snow shovel in good working condition
Pet food (not just dog food)	Batteries and chargers <-- Charged before a storm
Flashlights	Candles for lighting
Snow blower - Tested and staged by the driveway	Tire chains - inspected and ready
Fire wood - staged and covered	Dog food and animal first aid kit stored and ready
Gasoline for the generator and for the car - on hand	Battery with solar panel charger
Blankets - On hand	
Snow tires - mounted on the vehicle	

3-D Printing as Part of the Next Industrial Revolution
On September 13, 2016 in [3D Printing](#) by [Sylvie Barak](#)



The advent of 3-D printing is an integral part of what many are dubbing the fourth industrial revolution, aka [Industry 4.0](#) or the Industrial Internet of Things. The recent convergence of cyber-physical systems, the [Internet of Things](#), and the Internet of Services, has all served to bring customers and suppliers closer together.

Humanity has streamlined the process of manufacturing several times over the course of its history. First, we channeled water and steam to mechanize production. Then we learned to harness electrical power for mass production. Next, electronics and information technology helped us increase automation. Now with 3-D design and printing, we're able to blend the physical, virtual, biological, and chemical. While previous industrial revolutions took the means of production out of people's homes, some future 3-D printing scenarios put manufacturing machinery back in the general public's hands – a new mechanized cottage industry with all the best of personalization and creativity blended with the efficiency of machine production.

Building on the previous industrial revolution, Henry Ford's moving assembly line, and the dawn of mass production, 3-D printing now offers scope for improvisation in addition to creating things with speed with fairly high standards of quality. The standard product no longer needs to be so standard. 3-D printing was born from the PC and laser printing industries, taking the best qualities of both. Like

both of those industries, 3-D printing – or additive manufacturing – has been around for decades. Starting with stereolithography technology back in 1984, using UV lasers to solidify photopolymer for the creation of 3-D parts layer by layer. A plethora of other systems and patents emerged throughout the 1980s, 1990s, and early 2000s, though most were still exorbitantly expensive and focused on industrial applications, mainly processes for prototyping.

In parallel to the big industrial 3-D printers for aerospace and [automotive](#), however, many firms also continued developing less expensive user-friendly systems of which we're only just starting to see the tip of the iceberg – many of them raising money through crowdfunding websites and enjoying huge success and publicity from [the maker movement](#). 3-D printing has become a key player in the maker movement by giving regular people the ability to take an idea and turn it into a finished product with a CAD file, some [filament](#), and the press of a button.

Large technological leaps have been made in personal 3-D printers, taking them mainstream, as the number of applications have ballooned and people have found ways to share printers, making even larger ones [accessible to the general public](#).

What has, in the past, only been possible to make on the industrial level can now be made in small tech workshops, or even people's homes. Small businesses selling 3-D printed art, jewelry, furniture, and tools are springing up on a monthly basis as 3-D printing also helps people save on transport and other logistics. It is, of course, premature and naïve to suggest 3-D printing is about to become the premiere solution for all manufacturing needs. For prototyping, product development, innovation, cost reduction, and efficiency, however, it's clear to see the value and potential 3-D printing offers, especially for low-batch runs. Things can be printed on-demand, less material is required, and nearly none wasted.

The advantages of 3-D printing will eventually solve a number of supply-chain challenges, especially with printing speeds expected to increase by a significant 88% in the next five to seven years.

Today, more than 100 years since the birth of the [standardized product](#), 3-D printing is making it possible for people both within large industries and small businesses to create [customized products on demand](#) at affordable prices.

It may be too early to describe the emergence of 3-D printing as a new industrial revolution, but as the technology becomes faster, cheaper, and more sophisticated, moving from rapid prototyping to advanced manufacturing, there's little doubt it will have wide-reaching impacts on industry and the global economy.