

# RAINBOW CANYONS AMATEUR RADIO CLUB NEWSLETTER CEDAR CITY, UTAH



Club Website: [www.rcarc.info](http://www.rcarc.info) Number 6 – Vol. 7 July 2024

## Club Meeting Information

The RCARC meets at 7:00 p.m. on the 2<sup>nd</sup> Tuesday of each month at the Cedar City Senior Center, 489 E. 200 South. Down Stairs.

## 2024 Club Officer's

### President:

Fred Govedich  
K17TPD

1-435-559-2682

[fred.govedich@gmail.com](mailto:fred.govedich@gmail.com)

### Vice President

Ron Shelley  
K7HDX

1-623-261-6555

[ronald.shelley@gmail.com](mailto:ronald.shelley@gmail.com)

### Secretary

Bonnie Bain  
K17WEX

1-435-865-1653

[Bonnie.bain@gmail.com](mailto:Bonnie.bain@gmail.com)

### Treasurer

Linda Shokrian  
KG7PBX

1-435-867-5914

[lgshokrian@gmail.com](mailto:lgshokrian@gmail.com)

### Newsletter Editor/Historian

Dennis L. West  
W6DLW

1-760-953-7935

[rcarcnewsletter@gmail.com](mailto:rcarcnewsletter@gmail.com)



CQ, CQ, Happy 4th of July



## Presidents Message

Dear Fellow Amateur Radio Operators,

What a busy month! We started with our club swap meet and Go Kit Challenge! We had 6 entries and all of them had a different take on portable radio kits. We will present certificates at the Christmas party! As always Field Day was a great success with 287 contacts, 69 phone contacts on 40 meters, 77 phone contacts on 20meters, 84 phone contacts and 29 digital contacts on 15 meters, 17 digital contacts on 10 meters, 8 digital contacts on 6 meters and 3 contacts on 2 meters (SSB). The weather was good this year (a little warm with some wind, but overall good) and everything seemed to go well. We also had some of our new HAMs come out to play on the radio! It is great to see HAMs making their first HF contacts (looking at you Kevin and Dave!). As always it is great to see everyone helping out our new members. A big Thank you to everyone who participated by helping with set up and clean up, and by manning the radios and making contacts.

Continued on Page 2

## RCARC Club Nets:

7:00 a.m. Breakfast Net - Monday – Saturday – 146.760.  
12:30 p.m. Daily – Utah Beehive Net On 7.272.  
8:30 p.m. Tuesday's - ORCA Digital Net. Using FLDIGI, FLMSG AND FLAMP – 3.581 +, 1500/MFSK32.  
8:00 p.m. Wednesday – Panguitch Net – 147.160.  
7: pm. Thursday– Morse Code Net- This is a Zoom Meeting.  
8:30 p.m. Thursday's - WDN Digital Net. Using FLDIGI, FLMSG AND FLAMP – 3.581 +, 1500/MFSK32.  
8: p.m. Saturdays – SSTV – 449.925.  
9:00 p.m. Daily – Friendship Net – 146.760.  
11: a.m. Saturdays (Mtn. Time) QCWA – 160 Net, Utah Chapter,  
12: p.m. Freq. 7.272.  
8:00 pm. Sunday's – New Harmony Valley Net – Bumblebee Repeater. – 146.680 with a minus offset – PL 100.

## Local Repeaters:

### Iron Mountain

146.760 MHz – Tone 123.0 Hz  
146.980 MHz – Tone 100.0 Hz  
448.800 MHz – Tone 100.0 Hz  
449.500 MHz – Tone 100.0 Hz  
448.400 MHz -- Tone 100.0/FM & DMR

### Intermountain Intertie:

146.940 MHz – Tone 100.0 Frisco.  
146.800 MHz – Tone 100.0 Blow Hard  
147.200 MHz + Tone 100.0 Tod's/Hatch  
146.820 MHz – Tone 100.0 Utah Hill

### Bumblebee/New Harmony:

146.680 MHz – Tone 100.0 Hz

### Rowberry:

449.925 MHz – Tone 100.0 VHF Remote

### Dutton:

147.160 MHz + Tone 100.0 Hz.

## Save The Date

July 9, 2024

### **RCARC Club Meeting.**

7:00 pm. Cedar City Senior Center,  
489 E. 200 South. **A show and tell  
on mounting radios in vehicles.**

August 13, 2024

### **RCARC Club Meeting.**

7:00 pm. Cedar City Senior Center,  
489 E. 200 South. **More info to  
follow**

September 10, 2024

### **RCARC Club Meeting.**

7:00 pm. Cedar City Senior Center,  
489 E. 200 South **Ken (K7KM) will  
do a presentation on antennas.**

October 8, 2024

### **RCARC Club Meeting.**

7:00 pm. Cedar City Senior Center,  
489 E. 200 South. **More info to  
follow**

## **President's Message** **Continued from page 1.**

Overall, I hope everyone had a great time and I hope you can take the enthusiasm forward and play on the radio more! For our July meeting we will be having a show and talk about mobile radio installations (bring you radio/car). In August we have our club BBQ and in September we will have a presentation from Ken (N7KM) on antenna design. Should be fun couple of months! I hope everyone has been getting out on the radio! We have our local nets as well as opportunities to participate on HF contests, POTA, SOTA and anything else you turn your radio to doing! Have fun, and play on your radio. Remember if you need help with setting up your radio, software or other equipment please ask your fellow HAMs for help. Part of the fun is helping others!

**Continued next column**

Remember you can always pick up the mic and see who is listening! As always, I would like to thank everyone who makes our meetings great by asking questions. I would also like to thank all of our net controls for the nets and everyone who participates!

Cheers!  
Fred (K17TPD)

## **RCARC Monthly Breakfast**

**Please come join us on the  
first Saturday of each  
month at 9:00 am. for our  
club breakfast. We meet at  
the Golden Corral Buffet &  
Grill (in the back room),  
1379 S. Main Street, Cedar  
City. Their menu offers an  
unmatched variety of  
quality foods from  
breakfast to dinner.  
See you there.**



**Happy Birthday and  
Anniversary to those  
celebrating in July**



# **Happy 4<sup>th</sup> of July**

| Breakfast Net      |                     | Friendship Net     |                     |                    |
|--------------------|---------------------|--------------------|---------------------|--------------------|
| <b>First Place</b> | <b>Second Place</b> | <b>First Place</b> | W0KLH - Kevin       | <b>Third Place</b> |
| K2MFK - Kevin      | KI7SCX - John       | K7HDX - Ron        | W6DLW - Dennis      | KI7LVC - Tim       |
| K7ZI - Dick        | <b>Third Place</b>  | K7NKH - Lee        | <b>Second Place</b> |                    |
| K7ZZQ - Johnny     | KK6FLO - Dave       | K7WEP - Paul       | KE8OYI - Caleb      |                    |
| KE6ZIM - Johnny    | N7SIY - Sylvia      | K7ZI - Dick        | KI7LUM - Bruce      |                    |
| KE8OYI - Caleb     | WA7GVL - Paul       | KA7J - lance       | N7SND - Larry       |                    |
| KG7PBX - Linda     |                     | KI7TPD - Fred      | W9YNK - Benjamin    |                    |
| N7SND - Larry      |                     | KI7WEX - Bonnie    |                     |                    |
| W0KLH - Kevin      |                     | N7SIY - Sylvia     |                     |                    |
|                    |                     | N7WWB - Darlene    |                     |                    |

**Rainbow Canyons Amateur Radio Club  
Treasurer Report June 11, 2024**

|  |                          |
|--|--------------------------|
| Bank balance May1, 2024 (reconciled)                               | <b>\$2,531.35</b>        |
| May Membership 2024<br>W7KCL                                       | + 15.00                  |
| Donation - Equip   | + 300.00                 |
| May Expenses   |                          |
| Rocky mountain Power (98 repeater elec exp)                        | -20.47                   |
| Check # 133 Liability Ins Premium                                  | - 200.00                 |
| Check # 134 Antenna Trailer Expense                                | - 130.63                 |
| Bank Balance June 1, 2024 (Reconciled)                             | <b>\$2,495.25</b>        |
| June Deposits  |                          |
| Donations - equip  | + 190.00                 |
| June membership<br>KI7ZAD, K6COF, KJ7ZNT, KJ7ZNY<br>KD7RNO, KD6ZJR | + 75.00                  |
| June Expenses  |                          |
| Rocky Mountain Power (due 6/14/2024)                               | - 18.84                  |
| Field Day expenses   | - ??                     |
| Funds Available afer 6/15/2024                                     | <b><u>\$2,741.41</u></b> |

Submitted by  
Linda Shokrian KG7PBX  
2023 RCARC Treasurer  
435-867-5914

### RCARC Upcoming Events

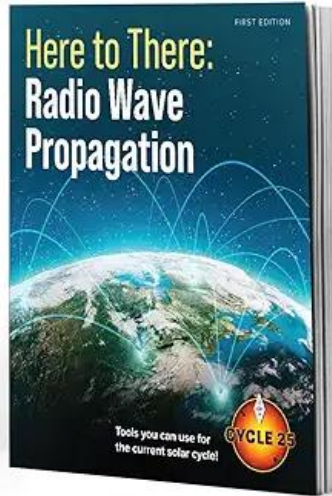
- **RCARC General Membership Meeting.** July 9, 2024 at 7:00 pm. Cedar City Senior Center. 489 E. 200 S., lower-level Northside of building. Presentation: A show and tell on mounting radios in vehicles.
- **RCARC Club Breakfast at the Golden Corral,** 1378 S. Main Street. Cedar City, Utah.
- **RCARC Annual BBQ and General Membership Meeting.** August 13, 2024 at 6:00 pm.
- **RCARC General Membership Meeting.** September 10, 2024 at 7:00 pm. Cedar City Senior Center. 489 E. 200 S., lower-level Northside of building. Presentation: Ken (K7KM) will do a presentation on antenna.

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**RCARC Book Giveaway. Books are donated by Linda Shokrian (KG7PBX)**

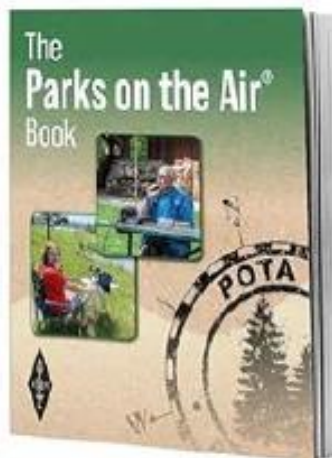
**Shown below is the book that will be given away at the July 9 2024 meeting.**



**The Book below was given away to**

**Daniel Jackson (KK7SWJ)**

**At the June 11, 2024 meeting**



**Congratulations Daniel**

**See Picture on page 14**

## Contact Us.

### **Mailing Address:**

195 E. Fiddler's Canyon Road #3.  
Cedar City, Utah 84721

### **Club E-mail:**

[cedarcity.rcarc@gmail.com](mailto:cedarcity.rcarc@gmail.com)

### **Newsletter E-mail:**

[rcarcnewsletter@gmail.com](mailto:rcarcnewsletter@gmail.com)

### **Website**

[www.rcarc.info](http://www.rcarc.info)

### **Face Book Page:**

<https://www.facebook.com/groups/440325486875752/>

### **To Join RCARC or Pay Dues:**

Go to [www.rcarc.info](http://www.rcarc.info) select "Club Info" and then "Join " RCARC. Follow the instructions on the template.

Make check payable to RCARC.  
Please write call sign on check.

**Thank You**

### **Check out the RCARC Calendar**

Go to RCARC.info. Click on Club Info. Click on Calendar. Once Calendar loads find the day you are looking for and click on the event time for detailed information.

Check out the other menu items as well





## Buzz's July Safety Tip(s)



### ARRL Amateur Radio Education & Technology Program Unit 7 Safety

What does safety mean to you? I'm sure you have heard your mother or father telling you to "be careful." Unfortunately, we don't always heed these warnings and something happens. It might be painful or embarrassing, but by then, it's too late. So, whose responsibility is it to see we play and work safely? When you were small, you were continually watched by an adult to make sure your basic needs were met. This included providing you with a safe environment. As you got older, you were allowed to venture out on your own around the neighborhood. Now you are in school, the school takes some responsibility for your safety but you take a large part of the responsibility yourself. So, to answer the question, "whose responsibility, is it?" The ultimate responsibility lies with each of us. Safety, all safety, comes down to each person's knowledge, common sense and attitude. For you to make good decisions about safety requires you to know your environment, to know your personal limitations and to be familiar with any devices you are working with. **This section on safety is divided into three areas.**

- 1. General Safety: Common sense situations. Use of ordinary tools and items found around the house, school or in public places.**
- 2. Electrical Safety: Specific safety suggestions while working around electrical equipment.**
- 3. RF Radiation & Electromagnetic Field Safety:** The least understood of the three. RF safety involves more detailed understanding of radio frequency and its effect of the human body. The following information is intended to help you develop your personal safety program at your school. Please remember, these are only guidelines and should not be considered a complete

General Safety All the information in the following sections is from ARRL publications: The ARRL Operating Manual, The ARRL Handbook, The ARRL Antenna Book and RF Exposure and You. It is important that you as a student using Amateur Radio as an instructional tool, maintain a safe environment for yourself and other students. To equip yourself with basic safety knowledge, you need to learn as much as possible about what could go wrong so you can avoid factors that might result in accidents. Amateur Radio activities are not normally dangerous, but like many things in modern life, it pays to be informed. Stated another way, while we long to be creative and have fun, there is still the need to act responsibly. Safety begins with our attitude. 1

One very important aspect of safety is to keep your work area clean. Amateur Radio operators often joke about having the "messiest shack" in town. Part of that comes from the amount of activity taking place in the shack. The operating position is often used for equipment repair and kit building, so there is often equipment and tools left on the bench. This can be a dangerous situation so it is a good idea to regularly clean the work space/operating position to keep it clear of tools, sharp object and liquid spills. Keep all tools in a toolbox or drawer so you can get to them but are still out of the way.

**Here is a list of some general safety rules to help you work safely around Amateur Radio equipment.**

- Keep you work area clean and free of unnecessary materials.
- Wear appropriate eye protection when working with tools.
- Wear appropriate foot protection when working with tools.

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# RCARC Annual Swap Meet and Go Kit Challenge

On Saturday June 15, 2024 RCARC club members descended on the pavilion at Christ the King Catholic Church, for the annual Ham Radio Gear Swap Meet and introduction of the Go Kit Challenge. What is a Go Kit challenge you say?

Registrants must **HAVE A FUNCTIONAL Go Kit**. In the RCARC Challenge there were 3 categories. 1. Mobile, 2. Portable and 3. Packable (back pack). When it becomes your turn to compete a judge must be present to see you complete 2 contacts to verify your Go Kit is functional and can be entered for a prize.

On this inaugural Go Kit sendoff there were 6 registered units. Fred (KI7TPD), Ron (K7HDX), Brant (KJ7LTQ), George (AL7BX) and Dennis (W6DLW). Prize winner will be announced at the club Christmas party in December.



Ron (K7HDX) Go Kit Set up with HF, VHF and Winlink.



A closer look at Ron's (K7HDX) backpack go hit.

**Continued next column**



Brant (KJ7LTQ) setting up is portable radio gear and making contacts through FT8 digital.



Dennis (W6DLW) table of stuff to sell.



George (AL7BX) table of ham gear for sale with go kit set up on right end of table.

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## Radio Patents

By HUGO GERNSBACK

**L**IKE most new industries, radio has its patent phase, but unlike other similar industries, it has not been built up upon a strictly patent foundation—broadly speaking. Take, for instance, the moving picture industry, the phonograph industry, and the automobile industry; these have been built up on a patent foundation—broadly speaking. Curiously enough, the radio industry, based upon a revolutionary invention, so to speak, has no patent platform. When Marconi first brought out his wireless apparatus, he did indeed take out a number of patents, not only in his native country—Italy—but subsequently in Great Britain, later in America and still later in all civilized countries. It should be remembered that his patents could not be basic because the real discoverer of wireless, Heinrich Hertz, a German professor did not take out patents on the original idea. If Marconi had made a basic invention, instead of its having been made by Hertz, he would have had the wireless industry in his control for at least 17 years. So the fact remains that his patents did him very little good. Everyone who so desired went into the wireless business, every company in the business had its own system and while there was some radio litigation, it was of no great importance. As far as apparatus was concerned, anyone and everyone could make and sell it, with but few exceptions. This was particularly true of receiving outfits.

This was the situation when broadcasting started. The situation, however, has not changed very greatly, although there are patents on broadcast transmitters. Those patents involved in the broadcasting transmitter practically all center around two pivotal points—the vacuum tube and certain radio circuits. On the other hand, it is possible to construct a broadcast station without infringing any patents.

On the receiving side we find a great many patents which do not seem to do their owners much good. The most famous patent, the Armstrong regenerative circuit—possibly the strongest of the lot—has just now been invalidated in favor of De Forest, who seemed to have conceived the idea before Armstrong. Even De Forest will not be able to enjoy the full fruits of his invention, due to the peculiar workings of the radio art.

In the instance of the Selden automobile patent, the inventor reaped worth-while benefits for the reason that it was practically impossible for a private individual to build a car for himself from parts he could buy in an automobile accessory store. Not so with radio. Despite Armstrong, or now De Forest, the average experimenter can walk into any store and buy the parts for a set which contains the patented regenerative circuit with no law to stop him. It is calculated that of the 3,500,000 outfits in America today, fully one-half are

such home made outfits. This is a peculiarity of radio, possibly not found in any other industry.

Not only do the dealers openly encourage the sale of such parts, but are openly selling all the parts sufficient to build a certain patented circuit with impunity. The reason is that as long as the outfit is not sold complete or wired up, it is impossible to prove in any court that such apparatus could not be used in a different circuit from the patented one. The dealer or manufacturer of these goods does, of course, not really infringe a patent any more than does a magazine when it publishes a patented circuit. Therefore, as far as patented circuits are concerned, they produce revenue only when a manufacturer sells a complete outfit, ready wired.

The only other patents of any real value to the owners are those of the vacuum tube. Here we have an instrument that cannot possibly be made at home. It requires expensive machinery, much capital and wide and long experience. Before the Fleming patent expired early this year the vacuum tube situation probably was the strongest in the radio industry.

The owners of the vacuum tube patents successfully enjoined infringers from making tubes and this is practically the only case where the owners of a basic radio patent reaped the full benefit of their patents.

With the expiration of the Fleming valve patent, the situation regarding the vacuum tube is no longer strong. Soon anyone with the necessary money will be in a position to make tubes.

It would seem, therefore, that only basic patents are of value in radio and from the very nature of the art there can be only a few such patents. Unless a radio invention is basic, there would appear to be little use for patenting the invention. The owner must be the judge.

On the other hand, what does not seem to be an important invention today may prove so tomorrow. The writer would strongly urge all those who do much experimenting to make careful notes of all their experiments. If you run across something that is new, you should put the data concerning it on paper and have it witnessed by a notary. This only costs a few cents and may prove of tremendous value later.

Then there are, of course, many mechanical patents of high value in the radio industry. There are excellent patents on such items as telephone plugs, head bands, loud speaker construction, detector detail, condenser construction, grid leaks, rheostats, etc.

Some of these have been extremely valuable for their owners. If properly drafted by a competent patent attorney, such patents will effectively protect their owners.

It may be interesting to know that fortunes have been made in articles of this kind which are simply improvements on existing devices and are not at all basic.

# ARRL Amateur Radio Education & Technology Program Unit 7 Safety

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Store sharp objects (screwdrivers etc.) with sharp points pointed away from you. When handing sharp objects to another person, hand it handle first.

- Only turn on a switch if you know what it operates.
- When lifting heavy objects, lift with your legs, not your back. •

Wipe up all liquids immediately.

- Remove rings and other jewelry when working on electronic equipment
- Keep a fire extinguisher in an accessible location. Fires in Amateur Radio equipment are rare but do happen. It is important that you are aware of the types of fire extinguishers available and which type to use around electrical equipment. Quick action can make the difference of a small fire or the loss of an entire building, not to mention loss of life.

So which fire extinguisher should you use? There are two types of fire extinguishers appropriate to use on electrical fires: The dry chemical or “ABC” type and CO2 type. The ABC type extinguishers contain a solid powder that does not conduct electricity, and is safe for electrical equipment. The CO2 type extinguishers use carbon dioxide to smother the fire. They also do not conduct electricity. CO2 types are heavy, difficult to handle, and are relatively expensive. Water extinguishers should never be used on an electrical fire. Why? Ground water is a conductor of electricity and is an electrical shock hazard.



Continued next column

**Electrical Safety** Although the RF, and ac and dc voltages in most amateur stations can be dangerous, common sense and knowledge of safety practices will help you avoid accidents. Building and operating an Amateur Radio station can be, and is for most amateurs, a perfectly safe hobby. However, carelessness can lead to severe injury, or even death. Remember there is no substitute for common sense. Here are some general things to think about with working around electricity:

- When working with electricity it is important to understand electrical theory. How electricity flows through conductors and basic circuitry.
- When working with commercial (store bought) equipment, it's a good idea to read the owner's manual to become familiar with the voltage and current requirements for that piece of equipment. Make sure the electrical circuit can supply the voltage and current needed to operate the equipment. Overloading the circuit (drawing too much current) can cause the circuit to overheat and possibly cause a fire.
- It's a good idea to have a “master switch” in the ham shack. This switch can shut off the power to all equipment in the shack at one time. Should there be an emergency, all you need to do is turn off one switch.
- It's not a good idea to use extension cords in the ham shack. They are often handy and are fine for a temporary connection but should not be used for a permanent connection. Extension cords can become frayed or cut and cause electrical shock or possibly start a fire, should the wires become shorted together.



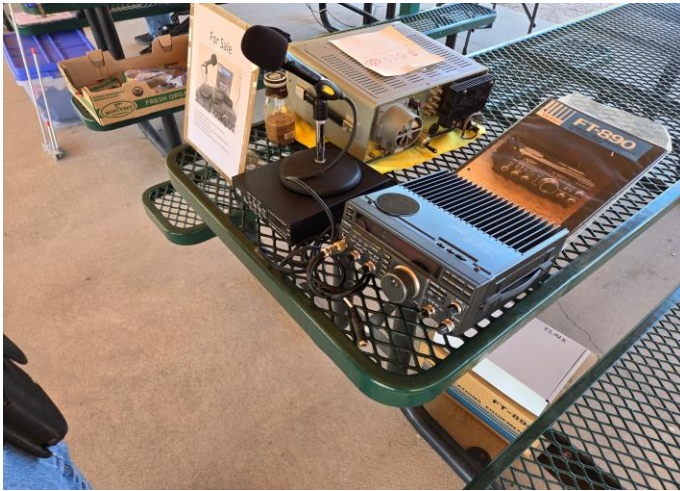
You should NEVER plug anything into an electrical outlet except an approved electrical plug (How's that for common sense?).

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# RCARC Annual Swap Meet and Go Kit Challenge

Continued from Page 6



Kevin (K2MFK) ham equipment for sale. Like what you see give him a call.



Dennis (W6DLW) portable Go Kit set up



View of tables set up with Ham Gear

**Continued next column**



More Stuff for sale.



Brody (KG7HDX) and the guys talking.



Ron (K7HDX) using a Faraday Cloth for a ground plane on the Wolf River 1000 HF antenna.



# RCARC June Membership Meeting & Parks on the Air (POTA) Presentation Pictures.



Terry West showing one of the two new aprons to be used by her and Brody (K7VXV) during Summer Field Day to Ron (K7HDX) & Darlene (N7WWB).



Brody (K7VXV) trying on the new apron.



Tony (KC6WFI) and Sonja (KD6HYH) waiting for the meeting to start as other members are arriving.



Terry West showing off the new Safety Officer Vest to be used during RCARC events.



Fred (KI7TPD) bringing the Meeting to Order

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# RCARC 2024 Summer Field Day Pictures

Early Saturday morning June 22, 2024 RCARC members made their way to the Iron County Three Peaks Recreational Area Campground and Pavilion. Under the leadership of Fred (KI7TPD) and the watchful eye of Bruno (KG7VVN – Safety Officer) the operation to set up the antenna tower and antenna was underway in preparation for the 12:00 pm. Field Day Start time.

2024 Field Day is ham radio's open house. Every June, hams throughout North America set up temporary transmitting stations in public places to demonstrate ham radio's science, skill and service to communities and the nation. It combines public service, emergency preparedness, community outreach, and technical skills all in a single event.

Some participants may also choose to operate from home, using the exercise to develop and practice their personal radio communications capability. Field Day has been an annual event since 1933 and remains the most popular event in ham radio.



Kevin (K2MFK – left) and Brody (K7VXV right) removing the antenna from the tube housing.



Kevin (K2MFK) assembling the beam antenna for attachment to the tower. While the guys in the background prep the trailer for stabilization.



Brody (K7VXV), Kevin (K2MFK) and Fred (KI7TPD) attaching antenna to the tower before tilting the tower upright.



Bruno (KG7VVN - Safety Officer) starting the safety briefing prior to the set up the antenna tower and antenna.

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# ARRL Amateur Radio Education & Technology Program Unit 7 Safety

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**NEVER** use electrical equipment around water. That includes Amateur Radio equipment as well. Water is a conductor. A little water on the floor or bench is an invitation for disaster. This includes soft drinks also. So, it's not a good idea to drink soda or water while operating a ham radio station. And as mentioned above, NEVER use a water fire extinguisher to put out an electrical fire.

- All wires carrying power around the ham shack should be of the proper size for the current to be drawn and should be insulated for the voltage level involved.
- All equipment in the ham shack should be connected to a good ground. Should you somehow touch a wire in the circuit, most of the electricity will flow to ground through the ground wire instead of you.



## RF Radiation and Electromagnetic Field Safety

Operating an Amateur Radio station is basically a safe activity. In recent years, however, there has been a lot of discussion about the possible dangers of electromagnetic radiation (EMR). This includes both radio-frequency (RF) energy, and power-frequency (50-60 Hz) energy, which comes from electrical power lines. FCC regulations set limits on the maximum permissible exposure (MPE) allowed for the operation of radio transmitters. These regulations do not take the place of RF-safety practices, however.



Continued next column

All life on Earth has adapted to survive in the weak, low-frequency electromagnetic fields found in nature. These natural low-frequency EMR fields come from two main sources: the sun, and thunderstorm activity (lightning). But in the last 100 years, man-made fields at much higher levels and wider frequency ranges have altered this natural EMR background in ways we still don't fully understand. Much more research is needed to determine the long-term effects of EMR. So, what are the effects of RF that we know of?

**Thermal Effects of RF Energy** Scientists have found that body tissues that are exposed to very high levels of RF energy may suffer serious thermal (heat) damage. Do you have a microwave oven at home? Microwave ovens use RF energy to cook food, right? That gives you an idea of what concentrated RF energy can do. The effects, however, depend upon the frequency of the energy, the power density (strength) of the RF field that strikes the body, and even such factors as the polarization of the wave. So, does that mean you will become a "crispy critter" if you operate a ham radio? Not! Thermal effects should not be a major concern for most radio amateurs because of the low RF power we normally use (100 watts). That's the same amount of power it takes to light a 100-watt light bulb. We are only exposed to these low RF power levels when transmitting a signal. Amateurs spend more time listening than talking and we are not always transmitting a signal. This limits our exposure to RF. So, the combination of low power and short transmitting time put ham radio in the lower margins of RF exposure. Some suggestions for avoiding too much exposure to RF will be listed later.

**Athermal Effects** of EMR Research about possible health effects resulting from exposure to the lower-level energy fields – the Athermal effects- has been of two basic types: epidemiological research and laboratory research. In laboratory research, scientist study how EMR may affect animals, including humans. Epidemiologists look at the health patterns of large groups of people. In the area of RF and EMR effects, the results of both methods of research have proven inconclusive. What does that mean? Scientists still have not been able to show that exposure to low-level RF and EMR is dangerous to our health. It is also important to note they have not been able to show that it isn't, as well. If you, your 4 teacher or parents are interested in doing further reading about RF safety, I suggest reading the ARRL publication "RF Exposure and You."

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# ARRL Amateur Radio Education & Technology Program Unit 7 Safety

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**Safe Exposure Levels** How much EM energy is safe? Scientist and regulators have devoted a great deal of effort deciding upon safe RF-exposure limits. This is a very complex problem, involving difficult public health and economic considerations. The recommended safe levels have been revised downward several times in recent years – and not all scientific bodies agree on the question even today. Because these fields dissipate rapidly with distance, “prudent avoidance” would mean staying perhaps 12 to 18 inches away from most Amateur Radio equipment (and 24 inches from power supplies and 1-kW RF amplifiers) whenever an ac power is turned on. There are currently no non-occupational US standards for exposure to low-frequency fields.

**General Safety Recommendations** There are a few additional RF safety points that you should be aware of when operating your Amateur Radio station. This section includes some general guidelines to help keep you and anyone near your station safe while it is being operated. Hand-held radios are very popular for VHF and UHF operation, especially with FM repeaters. They transmit with less than 7-watts of power, which is generally considered safe. Because the radios are designed to be operated with an antenna that is within 20 centimeters of your body, they are classified as portable devices by the FCC. Some special considerations are in order to ensure safe operation. This is especially true because hand-held radios generally place the antenna close to your head. Try to position the radio so the antenna is as far from your head (and especially your eyes) while transmitting. An external speaker microphone can be helpful.



Continued next column

**A mobile radio is a transceiver** that is designed to be mounted in a car. Mobile radios are normally intended to be operated with an antenna that is at least 20 cm from any person. Mobile operations also require some special considerations. For example, you should try to mount the antenna in the center of the metal roof of your car, if possible. This will use the metal body of the vehicle as an RF shield to protect people inside the car. Glass-mounted antennas can result in higher exposure levels, as can antennas mounted on a trunk lid or front fender. Glass does not form a good RF shield. 5

Although mobile radios usually transmit with higher power levels than hand-held radios, the mobile unit often produces less RF radiation exposure. This is because an antenna mounted on a metal car roof is generally well shielded from car occupants. Don't operate RF power amplifiers or transmitters with the covers or shielding removed. This practice helps you avoid both electric shock hazards and RF safety hazards.

Another area you should pay attention to is the feed line connecting your transmitter to your antenna. If you are using poor-quality coax, or if there are other causes leading to signals radiating from your feed line, you should consider replacing it (use only good-quality coax and be sure your connectors are installed properly). Improper grounding can also lead to a condition known as RF in the shack. This can be a problem with stations installed on the second or third floor (or higher) where the ground lead begins to act more like an antenna. If you notice that the SWR reading changes as you touch your equipment, or if you feel a tingling sensation in your fingers when you touch the radio or microphone, these may be indicators of RF in the shack. You will have to take some steps to correct these conditions to ensure a safe operating environment. As stated at the beginning, safety comes down to each person's knowledge, common sense and attitude. For you to make good decisions about safety requires you to know your environment, to know your personal limitations and to know the equipment you are working with. End.



# Clipping

## Article Submit by Dick Parker (K7ZI)

While monitoring the airwaves I have noted a universal problem while operating in voice mode----

By drawing your attention to this minor problem by no means is it intended to condemn nor offend anyone---as we all have participated in this error at one time or another. That is: **Clipping**. It is a universal problem, **clipping off the first syllable or word** of a sentence when "keying" the radio and **simultaneously** speaking into the mic.

It is more pronounced during stressful situations, such as: emergency drills, contests, stressful environments, net control duties, "traffic handling" etc. It does lead to confusion, requests for "repeats" or "fills" which slows the communicating process and gives the overall appearance of poor operating performance.

To correct this error and to improve our "professionalism" on the air, a simple maneuver is suggested.

Hold the mic away from your mouth (a foot or so) **key the mic at that distance**, then *bring the mic to your mouth* and begin speaking. Conscious practice will lead to unconscious good habit.

Older radios can take close to a second to switch from receive to transmit mode. This simple maneuver will give the radio time to switch and "clipping" will automatically be eliminated.

You're welcome.

Dick, K7ZI

## RCARC June Membership Meeting & Parks on the Air (POTA) Presentation Pictures.

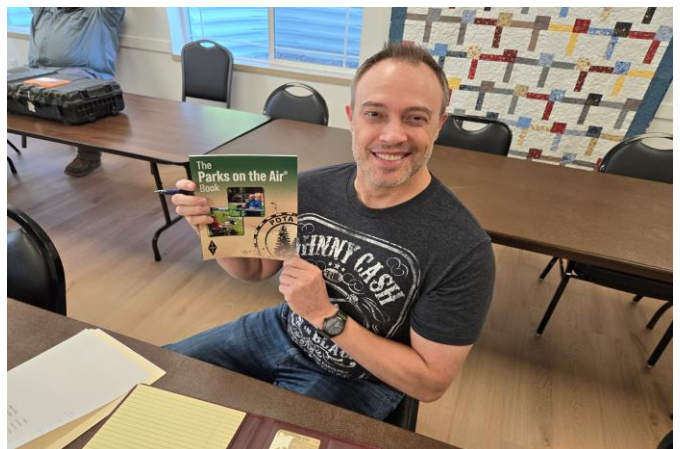
Continued from page 10



George Gallis (AL7BX) giving the local repeater report.



Ron Shelley (K7HDX) presenting Parks on the Air POTA to the group.



Daniel Jackson (KK7SWJ) won the Parks on the air book given away at the meeting.



## Amateur Radio Connects Family Members During Utah Boating Emergency

On June 5, Isaac Stiles, KJ7FAY, and his 3-year-old son were involved in a boating accident. Their canoe had tipped over at the Lost Dog Confluence to the Flaming Gorge Reservoir. The initial emergency call was made by Stiles' wife, Kendal. She had to drive to nearby campsites until she found someone with a phone and then made the call to the Green River Fire Department (GRFD). She told them the pair were in the water but could not be seen or found. Emergency responders rushed to the scene.

The fire crews were able to find Stiles and his son on the opposite side of the river. They were rescued by a Sweetwater County Sheriff's Department boat. Stiles' son needed ambulance transportation to a waiting Air Med Helicopter, which would then take him to Primary Children's Hospital in Salt Lake City.



Zach Gunyan, KE7WYG (left) and Isaac Stiles, KJ7FAY.

[Photo courtesy of SARC.

**Continued next column**

Stiles said that once his son was loaded into the ambulance to meet the helicopter, he needed to call his mother to take care of his other son...but there was no cell phone service. So, he tuned on his mobile ham radio to a local repeater and was able to reach Zach Gunyan, KE7WYG.

Gunyan made telephone contact with Stiles' mother and relayed critical information. He also went a few steps further and stayed on the phone to help calm and assure Mrs. Stiles that everything was going well. He took the rest of the day off from work, kept monitoring the repeater until Stiles was back in the area, and then went to the scene of the accident to help recover the boat and equipment.

After the telephone conversations with Gunyan, Mrs. Stiles thanked him for his help, to which he replied, "This is why I originally got into ham radio, to help just one person in an emergency."

Stiles had a hard time finding the words to thank Gunyan. "He's always been a dependable person and helped in many amateur events," said Stiles. "We are fast becoming good friends!"

Gunyan said he keeps his radio on most of the time, except when he is moving between locations and servicing computer networks. "I lose signal as I move from building to building," said Gunyan. "But on the day of the accident, I just happened to be at the right place, where I could hear the call for help."

## **Amateur Radio Connects Family Members During Utah Boating Emergency** Continued from page 15

Stiles' son is now out of the hospital and on track to make a full recovery.

Gunyan is an ARRL member and the current president of the [Sweetwater Amateur Radio Club](#) (SARC). He is an Emergency Management volunteer with the Sweetwater County Sheriff's Office. Stiles, secretary of the SARC, is now working on a way to recognize Gunyan for his efforts during the accident. End.



## **Northern California County's ARES Group Leads Communications Functions in Medical Exercise**

Placer County (California) ARES® was asked to participate in the April 25, 2024 Medical Exercise in conjunction with the Local Emergency Medical Service Authority (LEMSA). Our role was to provide communications support with Northern California counties.

There were several hospitals and the Medical Health Operational Area Coordination (MHOAC) entity, along with other State and Federal agencies involved. When talking to the medical exercise Incident Commander (IC), we discussed the types of traffic she would like passed and the information to be delivered. We determined that Winlink would be the best method of data transfer. Radio operators participating in the exercise would need to use a combination of HF and VHF frequencies to access Winlink radio message servers distributed over a wide geographic area.

**Continued next column**

The exercise would follow a typical chain of command for the Incident Command System (ICS), with the Placer County ARES Emergency Coordinator (EC) Scott Read, KM6RFB, acting as the Communications Unit Leader (COML). The IC requested the Communications Unit provide a standard Communications Plan (ICS-205), Communications Log (ICS-309) noting all traffic passed, and Incident Activity Logs (ICS-214) for all members of the unit. This was the first time that Placer County ARES was asked to be the lead group handling all communications for an exercise, as well as the first time using Winlink as the primary digital communications mode. Placer County ARES arrived promptly at 0700 to begin setting up equipment and deploying radio gear for the 0900-start time. The primary Winlink station at the exercise was operated completely on emergency power by using a Honda 1000 W generator and battery backup.

### Ransomware Attack Scenario

The exercise scenario was a ransomware attack of the medical system, with the length of the exercise to run from 0700-1300 hours. Participants included the Local Emergency Medical Service Authority, County Emergency Operations Center, Regional Health Officers, regional hospitals, Federal agencies (CISA), and additional state agencies (the Emergency Medical Services Authority and others).

**Continued on page 22**



# RCARC 2024 Summer Field Day Pictures

Continued from page 11



Fred (KI7TPD) left and Bruno (KG7VVN) right watch as the tower is raised upright.



The tower is up and the 2<sup>nd</sup> session is being raised. The trailer will then be secured with the guy ropes etc. for use.



Antenna Tower and antenna now ready or use.

Continued next column



Field Day is underway and Brody (K7VXV) is commencing with 40-meter voice contacts.



George (AL7BX) and Bruno (KG7VVN) looking on as George try's is luck with Digital FT8 contacts.



Ron (K7HDX) working 20-meter voice in the EComm Trailer.

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# ARRL BULLETIN

June 6, 2024

We are writing to inform you of a serious incident that has impacted ARRL's operations. On or around May 12, 2024, ARRL was the victim of a sophisticated network attack by a malicious international cyber group. We immediately involved the FBI and engaged with third party experts to investigate.

On May 16, on the eve of the ARRL National Convention in Ohio, we posted a notice on our website to inform members about the incident. Since then, we have made substantial progress to mitigate the impact of this attack on our organization. We have been posting regular updates, including the status of restored services. Please refer to our dedicated news post at <https://www.arrl.org/news/arrl-systems-service-disruption>.

We are aware that certain members believe we should be openly communicating everything associated with this incident. We are working with industry experts, including cybercrime attorneys and the authorities, who have directed us to be conservative and cautious with our communications while restoring the ARRL network. Many of our services and programs have been impacted by this attack. We have been diligently assessing each system to ascertain the extent of compromise. For example, while the Logbook of The World® server and related user data were unaffected, we have taken the precautionary measure of keeping the service offline until we can ensure the security and integrity of our networks.

**Continued next column**

Similarly, access to Online DXCC is unavailable, although individual award data remains secure.

Fortunately, some of our key systems, such as the ARRL website and our association membership system, were unaffected. Despite the severity of the attack, no personal information was compromised. Additionally, ARRL does not store credit card information anywhere on our systems, and we do not collect social security numbers.

Our directors have heard from some members who are concerned about managing their membership renewals. **Members can renew online at [www.arrl.org/join](http://www.arrl.org/join) or by phoning ARRL.**

We understand the frustration and inconvenience this incident has caused, and we sincerely appreciate your patience and understanding as our dedicated staff and partners continue to work tirelessly to restore affected systems and services.

Thank you for your ongoing support. END.





## Field Day 2024 N7U's Contest Summary Report for ARRL-FD.

Created by N3FJP's ARRL Field Day Contest Log

Version 6.6.8 www.n3fjp.com

Total Contacts = 287

Total Points = 341

Operating Period: 2024/06/22 18:04 -  
2024/06/23 17:56

Total op time (breaks > 30 min  
deducted): 14:13:28

Total op time (breaks > 60 min  
deducted): 17:42:48

Avg Qs/HR (breaks > 30 min deducted):  
20.2

### Total Contacts by Band and Mode:

| Band  | CW | Phone | Dig | Total | %   |
|-------|----|-------|-----|-------|-----|
| ----  | -- | ----- | --- | ----- | --- |
| 40    | 0  | 69    | 0   | 69    | 24  |
| 20    | 0  | 77    | 0   | 77    | 27  |
| 15    | 0  | 84    | 29  | 113   | 39  |
| 10    | 0  | 0     | 17  | 17    | 6   |
| 6     | 0  | 0     | 8   | 8     | 3   |
| 2     | 0  | 3     | 0   | 3     | 1   |
|       | -- | ----- | --- | ----- | --- |
| Total | 0  | 233   | 54  | 287   | 100 |

### Total Contacts by Section:

| Section | Total | % |
|---------|-------|---|
| UT      | 11    | 4 |
| VA      | 11    | 4 |
| NFL     | 10    | 3 |
| NTX     | 10    | 3 |
| OR      | 10    | 3 |
| STX     | 10    | 3 |
| ID      | 9     | 3 |
| MDC     | 9     | 3 |
| ID      | 9     | 3 |
| MDC     | 9     | 3 |

| Section | Total | % |
|---------|-------|---|
| SJV     | 3     | 3 |
| SV      | 8     | 3 |
| BC      | 7     | 2 |
| EPA     | 7     | 2 |
| KS      | 7     | 2 |
| NC      | 7     | 2 |
| WWA     | 7     | 2 |
| IL      | 6     | 2 |
| IN      | 6     | 2 |
| SB      | 6     | 2 |
| SCV     | 6     | 2 |
| NLI     | 5     | 2 |
| NNJ     | 5     | 2 |
| OK      | 5     | 2 |
| WI      | 5     | 2 |
| CO      | 4     | 1 |
| ENY     | 4     | 1 |
| ND      | 4     | 1 |
| NV      | 4     | 1 |
| ORG     | 4     | 1 |
| SC      | 4     | 1 |
| SD      | 4     | 1 |
| SFL     | 4     | 1 |
| WCF     | 4     | 1 |
| WNY     | 4     | 1 |
| WY      | 4     | 1 |
| AR      | 3     | 1 |
| IA      | 3     | 1 |
| LAX     | 3     | 1 |
| SDG     | 3     | 1 |
| WPA     | 3     | 1 |
| WTX     | 3     | 1 |
| WV      | 3     | 1 |
| AB      | 2     | 1 |
| AL      | 2     | 1 |
| AZ      | 2     | 1 |
| CT      | 2     | 1 |
| EMA     | 2     | 1 |
| EWA     | 2     | 1 |
| GA      | 2     | 1 |
| MB      | 2     | 1 |
| MI      | 2     | 1 |
| NE      | 2     | 1 |

Continued Next Column

Continued on page 23

# RCARC 2024 Summer Field Day Pictures

Continued from page 17

## Lunch has arrived

Terry West and Bonnie (KI7WEX) made a lunch run for Pizza's from the HUB.



The troops are taking a break and chowing down.



Back to the fun times. Dennis (W6DLW) working 20-meter voice in the EComm Trailer. Look at that view out the back door.



Dick (K7ZI) making his famous Dutch Oven Potatoes for the upcoming potluck.



Brody (K7VXV) kicking off the potluck with Barbequing Hot Dogs and Hamburger's



Fred (KI7TPD) serving some of Dick's (K7ZI) great Dutch Oven potatoes.

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Continued next column



# RCARC 2024 Summer Field Day Pictures

Continued from page 20



Members enjoying the potluck and conversation.



Same as picture above.



Some of the young Hams chowing down.

Continue next column



RCARC Field Day set up from the South looking to the North. Picture taken by Paul (WA7GVL).



RCARC Field Day set up looking East. Picture by Fred (KI7TPD) End.





## Northern California County's ARES Group Leads Communications Functions in Medical Exercise

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The exercise scenario was a ransomware attack of the medical system, with the length of the exercise to run from 0700-1300 hours. Participants included the Local Emergency Medical Service Authority, County Emergency Operations Center, Regional Health Officers, regional hospitals, Federal agencies (CISA), and additional state agencies (the Emergency Medical Services Authority and others). Placer County ARES deployed a large-screen TV as a second computer monitor to allow exercise participants to see the Winlink station in operation and act as a teaching aid during Winlink demonstrations.

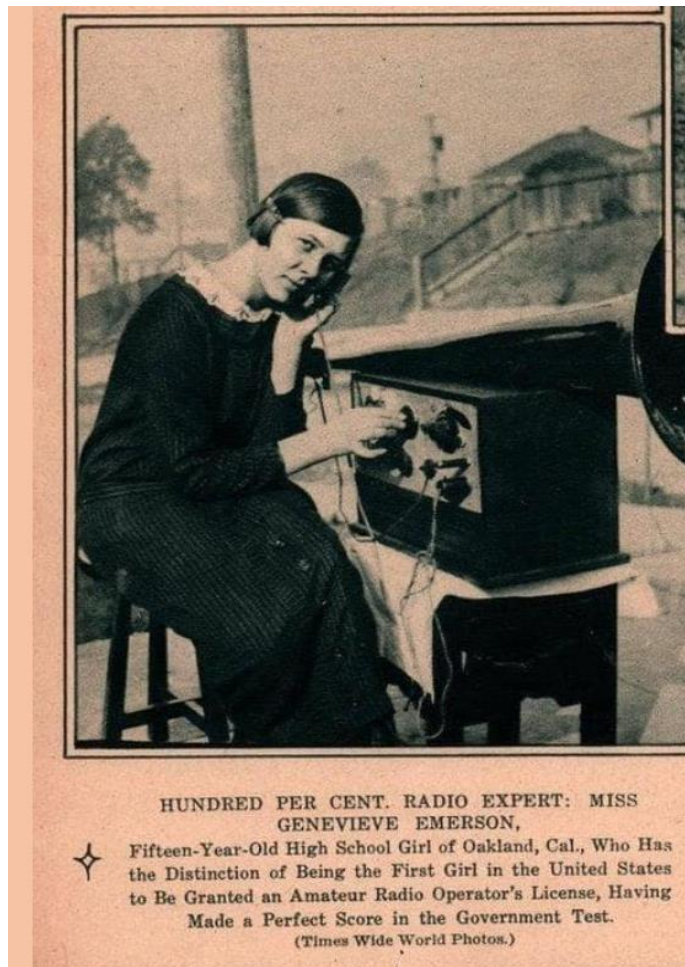
Placer County ARES passed 24 messages and received a similar volume of traffic from the participating agencies. The equipment used at the communications control station included an HP ProBook Laptop, an Alnico DR-135 radio, Repeater Builder RIM-Alnico sound card, an N9TAX antenna for voice operation, and a Diamond X50 antenna for the Winlink station.

Throughout the day, the Emergency Management director and other agency personnel stopped by the Placer County ARES station to learn more about Winlink and experience how effective Winlink was at passing critical traffic. Several agencies inquired about building similar capabilities at their facilities.

Continued next Column

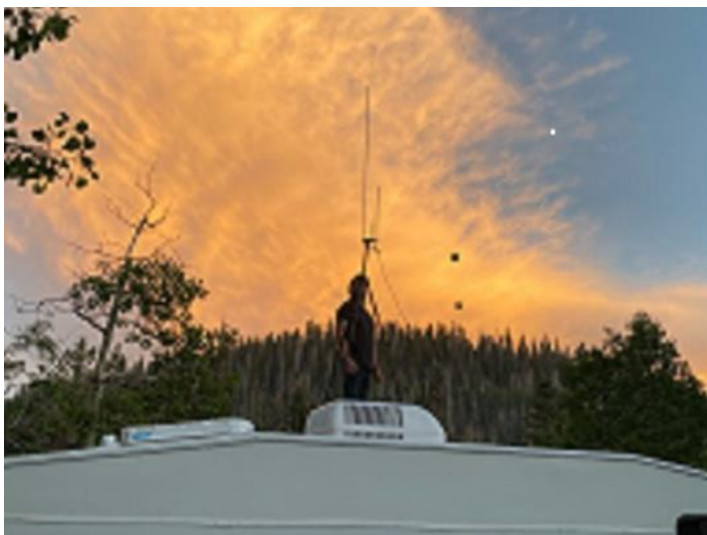
The exercise turned out to be a great public relations event for Placer County ARES. One of the keys to our success was our professional presentation in a central location during the exercise that generated excellent visibility for our team and interest from exercise participants. Placer County ARES was able to capitalize on this opportunity by delivering clear and concise demonstrations of our Winlink capabilities that helped generate a renewed interest in amateur radio as a professional-grade radiocommunications. -- *Placer County ARES EC Scott Read, KM6RFB*

## A Bit of History





## Member Pic's



Standing atop his Motor Home with his Jpole Antenna is Autin (W1EPR). He was trying to check in to the Friendship Net but discovered he had a loose connection. Oh, loose connection in the antenna, Ha, Ha.



Above and below Dennis (W6DLW) and Paul (WA7GVL) checking out the Go Kit Challenge Equipment prior to the event.



## Field Day 2024 N7U's Contest Summary Report for ARRL-FD.

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| Section                                 | Total     | %  |
|---|-----------|----|
| NM                                      | 2         | 1  |
| RI                                      | 2         | 1  |
| SNJ                                     | 2         | 1  |
| TN                                      | 2         | 1  |
| VT                                      | 2         | 1  |
| DE                                      | 1         | 0  |
| DX                                      | 1         | 0  |
| EB                                      | 1         | 0  |
| GH                                      | 1         | 0  |
| LA                                      | 1         | 0  |
| MN                                      | 1         | 0  |
| MO                                      | 1         | 0  |
| MS                                      | 1         | 0  |
| MT                                      | 1         | 0  |
| NH                                      | 1         | 0  |
| NNY                                     | 1         | 0  |
| OH                                      | 1         | 0  |
| ONE                                     | 1         | 0  |
| ONS                                     | 1         | 0  |
| QC                                      | 1         | 0  |
| SF                                      | 1         | 0  |
| WMA                                     | 1         | 0  |
| <b>Total Contacts</b>                   | <b>73</b> |    |
| <b>Total Contacts by State or Prov.</b> |           |    |
| State                                   | Total     | %  |
| CA                                      | 40        | 14 |
| TX                                      | 23        | 8  |
| FL                                      | 18        | 6  |
| NY                                      | 14        | 5  |
| UT                                      | 11        | 4  |
| VA                                      | 11        | 4  |
| OR                                      | 11        | 4  |
| PA                                      | 10        | 3  |
| ID                                      | 9         | 3  |
| MD                                      | 9         | 3  |
| WA                                      | 9         | 3  |
| BC                                      | 7         | 2  |
| KS                                      | 7         | 2  |
| NC                                      | 7         | 2  |
| NJ                                      | 7         | 2  |
| IL                                      | 6         | 2  |

Continued on page 24

## Field Day 2024 N7U's Contest Summary Report for ARRL-FD.

Continued from page 23

| Section                          | Total     | %  |
|----------------------------------|-----------|----|
| IN                               | 6         | 2  |
| OK                               | 5         | 2  |
| WI                               | 5         | 2  |
| CO                               | 4         | 1  |
| ND                               | 4         | 1  |
| NV                               | 4         | 1  |
| SC                               | 4         | 1  |
| SD                               | 4         | 1  |
| WY                               | 4         | 1  |
| AR                               | 3         | 1  |
| IA                               | 3         | 1  |
| MA                               | 3         | 1  |
| ON                               | 3         | 1  |
| WV                               | 3         | 1  |
| AB                               | 2         | 1  |
| AL                               | 2         | 1  |
| AZ                               | 2         | 1  |
| CT                               | 2         | 1  |
| GA                               | 2         | 1  |
| MB                               | 2         | 1  |
| Mi                               | 2         | 1  |
| NE                               | 2         | 1  |
| MM                               | 2         | 1  |
| RI                               | 2         | 1  |
| TN                               | 2         | 1  |
| VT                               | 2         | 1  |
|                                  | 1         | 0  |
| DE                               | 1         | 0  |
| LA                               | 1         | 0  |
| MN                               | 1         | 0  |
| MO                               | 1         | 0  |
| MS                               | 1         | 0  |
| MT                               | 1         | 0  |
| NH                               | 1         | 0  |
| OH                               | 1         | 0  |
| QC                               | 1         | 0  |
| <b>Total</b>                     | <b>51</b> |    |
| <b>Total Contacts by Country</b> |           |    |
| Country                          | Total     | %  |
| USA                              | 271       | 54 |
| Canada                           | 14        | 5  |

Continued next Column

| Country   | Total     | %  |
|---|-----------|----|
| Alaska  | 1         | 0  |
| Cuba  | 1         | 0  |
| <b>Total</b>  | <b>4</b>  |    |
| <b>Total DX Miles (QSOs in US not Counted) = 34, 200. Average Miles Per DX QSO – 2,137. NA = 31</b> |           |    |
| <b>Total Contacts by CQ Zone</b>  |           |    |
| CQ Zone   | Total     | %  |
| 05  | 101       | 35 |
| 03  | 97        | 34 |
| 04  | 87        | 30 |
| 01  | 1         | 0  |
| 08  | 1         | 0  |
| <b>Total</b>  | <b>5</b>  |    |
| <b>Total Contacts by Initials</b>   |           |    |
| Initials  | Total     | %  |
| RC  | 117       | 41 |
| BRJ   | 55        | 19 |
| LS  | 49        | 17 |
| FRG   | 25        | 9  |
| GG  | 11        | 4  |
| DW  | 8         | 3  |
| RS  | 7         | 2  |
| DJ  | 6         | 2  |
| KLH   | 3         | 1  |
| TM  | 3         | 1  |
| JBM   | 2         | 1  |
|   | 1         | 0  |
| <b>Total</b>  | <b>11</b> |    |
| <b>Total Contacts by Operator</b>   |           |    |
| Operator  | Total     | %  |
| N7BO  | 117       | 41 |
| K7VXV   | 55        | 19 |
| KG7PBX  | 49        | 17 |
| KI7TPD  | 25        | 9  |
| AL7BX   | 11        | 4  |
| W6DLW   | 8         | 3  |
| K7HDX   | 7         | 2  |
| KK7SWJ  | 6         | 2  |
| KI7LVC  | 3         | 1  |
| W0KLH   | 3         | 1  |
| KG7VEI  | 2         | 1  |
|   | 1         | 0  |
| <b>Total</b>  | <b>11</b> |    |

Continued on page 25



## Field Day 2024 N7U's Contest Summary Report for ARRL-FD.

Continued from page 24

| Station                           | Total    | %  |
|-----------------------------------|----------|----|
| Maestro - E-Book11_1              | 161      | 56 |
| MZB1164G64GW10                    | 69       | 24 |
| PBX                               | 49       | 17 |
| AL7BX                             | 8        | 3  |
| <b>Total</b>                      | <b>4</b> |    |
| <b>Total Contacts by Computer</b> |          |    |
| Computer                          | Total    | %  |
| Maestro --Book11_1                | 161      | 56 |
| MZb1164G64GW10                    | 69       | 24 |
| PBX                               | 49       | 17 |
| AL7PBX                            | 8        | 3  |
| <b>Total</b>                      | <b>4</b> |    |



## Ham Humor



"Sorry OM, I can only work QRP at the moment!"

