

# RAINBOW CANYONS AMATEUR RADIO CLUB NEWSLETTER

CEDAR CITY, UTAH



Club Websites: [www.rcarc.info](http://www.rcarc.info) OR [www.rainbowcanyons.com](http://www.rainbowcanyons.com) Number 2 – Vol. 9 – September 2020

## 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. **On Hold UFN. COVID-19**

## 2020 Club Officer's

### President:

Fred Govedich

KI7TPD

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

KI7WEX

1-435-865-1653

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

### Treasurer

Larry Bell

N7SND

1-435-586-4651

[larryb@infowest.com](mailto:larryb@infowest.com)

### Newsletter Editor

Dennis L. West

W6DLW

1-760-953-7935

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



CQ, CQ, Happy Labor Day



## Presidents Message

Greetings fellow HAMs!

Hope you had a good month! We had a great presentation (Zoom) for our monthly meeting. Thank you Kelly Anderson (KV7V) for presenting on 2-meter SSB and mobile operations. The fire road race went well! Thank you everyone who participated. I hope you have had a chance to get out and play on the radio a bit even with the warm weather. Maybe this is a good time to get up to the high country to try out your mobile radio operations.

We have the Half Marathon coming up on September 12<sup>th</sup>. Contact Ron K7HDX if you are interested in helping out.

I hope everyone has an opportunity to get out and play on the radio!

**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.

7:00 p.m. Tuesday's Southwestern Utah Digital Net. Using FLDIGI, FLMSG AND FLAMP – 146.680, 1500/MT63-2KL

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.

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.

7:00 p.m. Thursdays – RCARC CW Net on 146.980

## Local Repeaters:

146.980 MHz – Tone 100.0 Hz

146.940 MHz – Tone 100.0 Hz

146.760 MHz – Tone 123.0 Hz

147.160 MHz + Tone 100.0 Hz.

448.800 MHz – Tone 100.0 Hz

146.680 MHz – Tone 100.0 Hz

## Remote Bases:

449.500 MHz – Tone 100.0 Hz

449.925 MHz – Tone 100.0 Hz

ILRP/Echolink

449.900 MHz – Tone 100.0 Hz

## Save The Date

**September 8, 2020**

RCARC Club Meeting.

[Radio meeting](#)

**Presentation by:** Lee Phebus  
(KF7YRS) on his antenna designs.

**October 13, 2020**

RCARC Club Meeting.

[Radio meeting.](#)

**November 10, 2020**

RCARC Club Meeting.

[Radio meeting](#)

**December 8, 2020**

RCARC Club Meeting.

[Radio meeting](#)

**Meetings start at 7 pm. on  
the Iron Mountain Repeater -  
146.760, minus offset with a  
PL of 100.**

**Also available through  
Echolink – KG7PBX.**

## **Presidents Message -Cont'd**

We have our local nets as well as opportunities to participate on HF contests so get out there, have fun, and play on your radio.

As always, I would like to thank everyone who makes our meetings great by participating and asking questions. I would also like to thank all of our net controls for the nets and everyone who participates! Our next meeting will be on the air on September 8<sup>th</sup> and we will be hearing from Lee Phebus (KF7YRS) who will present on his antenna designs!

Stay safe and healthy!

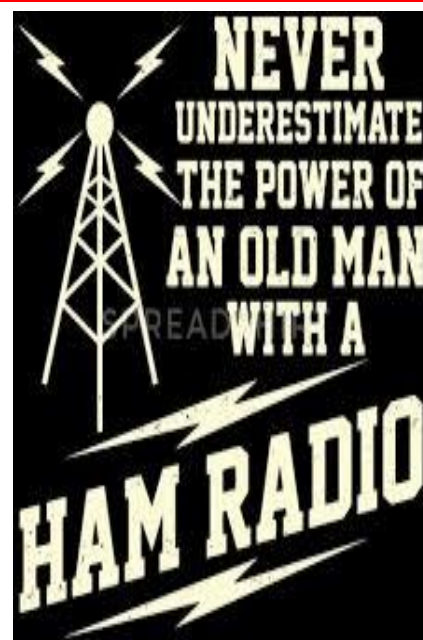
Cheers!

Fred (KI7TPD)

## **RCARC Club Breakfast**

Come join us the first Saturday of every month at 9:00 a.m. for breakfast at the Pastry Pub located at 86 W. Center Street, Cedar City. Check out their website at:

[www.cedarcitypastrypub.com](http://www.cedarcitypastrypub.com)



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



**HAPPY LABOR DAY!**



## Breakfast & Friendship Net Awards

Breakfast Net		Friendship Net	
First Place	Second Place	First Place	Second Place
KG7PBX - Linda	KI7SDA - Jerel	KI7WEZ - Darlene	KA7J - Lance
KI7WEX - Bonnie	N7SND - Larry	KI7TPD - Fred	N7TCE - Merlin
KI7TPD - Fred	KK7ZL - Ed	K7HDX - Ron	<b>Third Place</b>
KB7UMU - Sylvia	KI7LUO - Melody	KI7WEX - Bonnie	N7NKH - Lee
K7ZZQ - Johnny	<b>Third Place</b>	W6DLW - Dennis	KI7LUM - Bruce
K7ZI - Dick	KI7LVC - Tim	KG7VEJ - Jack	KJ7LTQ - Brant
K7DVP - Vernile		KJ7OZI - Paul	N7SND - Larry
		KI7SXJ - Isaiah	
		KD7TTT - Terry	
		K7ZI - Dick	

## Single Sideband on 2 Meters: The Other VHF Mode

Most new hams get started on the ham bands using FM, with 2m and 70cm being the most popular bands. This is a great way to get started using VHF simplex and repeater communications. FM is the most popular mode primarily due to the wide availability of FM repeaters. These repeaters extend the operating range on VHF and enable low power handheld transceivers to communicate over 100 miles. FM is also used on simplex to make contacts directly without repeaters.



Bob K0NR operates portable using 2m SSB, with a horizontally-polarized antenna.

Continued on next column

The main disadvantage of FM is relatively poor performance when signals are weak, which is where SSB really shines. A weak FM signal can disappear completely into the noise while a comparable SSB signal is still quite readable. How big of a difference does this really make? Perhaps 10 dB or more, which corresponds to one or two S-units. Put a different way, using SSB instead of FM can be equivalent to having a beam antenna with 10 dB of gain, just by changing modulation types. So, this is a big deal and radio amateurs interested in serious VHF work have naturally chosen SSB as the preferred voice mode. (You will also hear them using Morse code or CW transmissions, which is even more efficient than SSB.)

As an example of what is possible on SSB, during one VHF contest I was operating portable in Colorado Springs. I had just dismantled my 2m yagi antenna and was listening to 2M SSB on a short mobile whip antenna. Suddenly, I heard WA7KYM in Cheyenne, Wyoming calling CQ from about 160 miles away.

I figured that with my puny little antenna and only 10 watts of power, there was no way he was going to hear me. But, what the heck, it was a contest and it would be more points so I gave him a call.

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## Mental Age Assessment Test

The following test was developed as a mental age assessment by the School of Psychiatry at Harvard University.

Take your time and see if you can read each line aloud without a mistake. The average person over 50 years of age cannot do this.

1. This is this cat.
2. This is is cat.
3. This is how cat.
4. This is to cat.
5. This is keep cat.
6. This is an cat.
7. This is old cat.
8. This is person cat.
9. This is busy cat.
10. This is for cat.
11. This is forty cat.
12. This is seconds cat.

Now go back and read the third word in each line from the top down. I'll bet you can't resist passing this on.

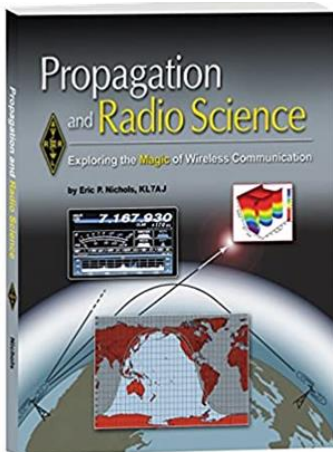


Fall is just around the corner

## RCARC September Meeting Book Give Away

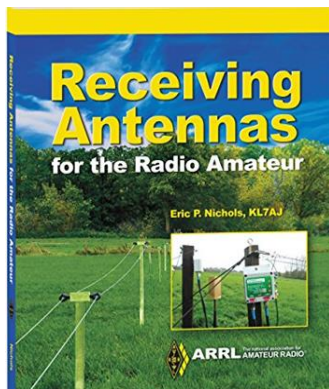
The book shown below will be awarded to one of our RCARC members at our club meeting on September 11, 2020.

This book is being donated by Linda Shokrian (KG7PBX).



## RCARC Book Give Away Winner.

The winner of the August 11, 2020 ARRL Receiving Antennas for the radio amateur book give away is Sylvia (KB7UMU)



**Congratulations  
Sylvia**

## 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)

[www.rainbowcanyons.com](http://www.rainbowcanyons.com)

### Face Book Page:

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

Please send your correspondence to the above address or should you have any questions or concerns please e-mail us.

Thank you



## August 1, 2020 RCARC Breakfast at the Pastry Pub Pictures



Not the same when your social distancing.

## ARRL 2020 Simulated Emergency Test (SET) Scheduled for October 3 - 4 Weekend

The 2020 ARRL Simulated Emergency Test (SET) will take place October 3 - 4. The annual, nationwide exercise provides Amateur Radio Emergency Service (ARES) volunteers the chance to test personal emergency-operating skills and communication readiness in a simulated emergency deployment. ARRL is asking participants to adhere to Center for Disease Control (CDC) and local health department COVID-19 [guidelines](#) by staying home, maintaining safe distances when around people, and following recommended cleaning and disinfecting practices.



Ed Compos, K5CRQ (left), and Bart Pickens, N5TWB, serve as net control operators from the Tulsa County Emergency Operations Center during the 2019 SET in Tulsa County, Oklahoma. [Paul Teel, WB5ANX, photo]

ARRL Field Organization leadership at the Section and local levels -- as well as many other volunteers who are active in public service and emergency communication -- are developing emergency scenarios with a variety of agencies and organizations they've partnered with in the past during real emergencies and disasters.

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## Buzz's September Safety Tip

### Fall Season Safety

By Kate Miller-Wilson

As the air turns cooler and leaves drop from the trees, it's important to keep a few important fall safety tips in mind. With proper precautions and safety awareness, your family can enjoy that crisp autumn weather while avoiding some of the dangers that come with the season.

#### Fire Safety Tips for Fall

When the weather turns cold most people spend more time inside their homes using fireplaces, furnaces, and heaters to keep warm. There's nothing quite as cozy as a fire, but it presents some safety hazards. Keep these tips in mind.

#### Service Your Furnace

Before the cold autumn and winter weather sets in, be sure to call your heating and cooling company to service your furnace. A specialist should inspect the furnace to make sure everything is in working order and that there are no leaks.

#### Use Fireplaces Safely

Keep that fire in its proper place by using a fireplace screen to keep sparks from flying out of the fireplace. Never leave a burning fire unattended and make sure a fire in [a fireplace](#) is completely out before going to bed.

#### Use Caution with Space Heaters

A space heater can be an effective way to warm up a chilly room, but it's essential that you read the instructions on the unit before you use it. If your space heater requires venting, make sure you have vented it to the outdoors. Never use your stove or oven to heat your home; only use space heaters that are approved for this purpose. Always allow at least three feet of empty area around space heaters.

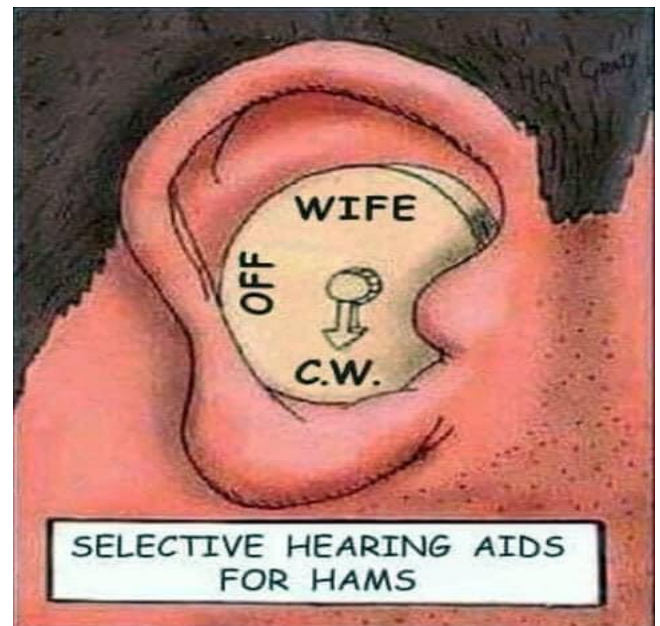
#### Reconsider Leaf Burning

According to information from the [Environmental Protection Agency](#), burning leaves produces dangerous and cancer-causing chemicals. For this reason, homeowners should avoid disposing of leaves this way. If you decide to burn leaves, wear a protective mask. Burning leaves should only be attempted far away from a house or other structure on a homeowner's property. Always check the weather forecast before starting to burn leaves. This activity should not be attempted in windy conditions.

#### Exercise Candle Caution

Candles are a great way to give a room that warm glow, but they can also cause fires. According to the [National Candle Association](#), almost 10,000 home fires start with improper candle use. Never leave candles burning if you go out or go to sleep and keep your candles away from pets and kids.

### Keep Safe



Continued next column

## ARRL 2020 Simulated Emergency Test (SET) Scheduled for October 3 - 4 Weekend - Continued

Given the ongoing pandemic, an in-person emergency exercise may not be possible this year, but volunteers are encouraged to adapt to the circumstances. Station and skills readiness are tenets of the Amateur Radio Service. Any time we spend on the air will contribute to developing and practicing our personal radio communication capability.

Volunteers with ARES, the National Traffic System (NTS), the Radio Amateur Civil Emergency Service (RACES), SKYWARN™, Community Emergency Response Team (CERT), Salvation Army Team Emergency Radio Network (SATERN), and other allied groups and public service-oriented amateur radio groups are among those eligible to participate in the SET to practice emergency operation plans, nets, and procedures.

ARRL has long-standing [relationships](#) with several national organizations including the American Red Cross, the National Weather Service, the Federal Emergency Management Agency, and the Salvation Army, among others.

This year's SET can be a chance to reach out to these partners -- at a safe distance and/or via online meetings and teleconferences -- to establish or review plans and develop working relationships.

ARRL Field Organization leaders have the option of conducting local or Section-wide SETs on dates other than the October 3 - 4 focal-point weekend, but no later than the end of the calendar year. Contact your local ARRL Emergency Coordinator or Net Manager or ask your Section Manager.

Additional [information about SET and the reporting forms](#) are available on the ARRL website.

## Radio Amateur Takes Part in Historic First Commercial Human Spaceflight to ISS

Bob Behnken, KE5GGX, was one of two NASA astronauts who made spaceflight history over the weekend. Behnken and Doug Hurley were the first astronauts since the 1970s to make a water landing, after their Crew Dragon capsule splashed down in the Gulf of Mexico on Sunday. On May 30, the pair made history as the first live crew to be launched into space in a commercial vehicle, for a stay on the International Space Station (ISS), marking the return of human spaceflight to US soil for the first time in nearly a decade.



**Bob Behnken, KE5GGX (left), and Doug Hurley after splashdown. [NASA, photo]**

A SpaceX Falcon 9 vehicle carried the crew into orbit from Cape Canaveral. The so-called "Demo-2" was the last major test for SpaceX's human spaceflight system, to be certified by NASA for operational crew missions to and from the ISS. Four huge parachutes carried the Crew Dragon capsule to a safe splashdown near Pensacola, Florida, on Sunday, August 1.

"On behalf of the SpaceX and NASA teams, welcome back to planet Earth," SpaceX Engineer Michael Heiman radioed to the crew after their landing. "And thanks for flying SpaceX."

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## Radio Amateur Takes Part in Historic First Commercial Human Spaceflight to ISS - Continued

NASA Administrator Jim Bridenstine proclaimed that the US was entering a new era of human spaceflight, noting that NASA was no longer the only option for US space travel. "We are going to be a customer," he said. NASA has contracted with two companies -- SpaceX and Boeing -- to ferry astronaut crews to and from the ISS.



While part of the space station crew for 2 months, Behnken and Astronaut Chris Cassidy, KF5KDR, the sole American onboard when their *Endeavour* capsule docked, carried out four spacewalks to install new batteries on the ISS.

The SpaceX Crew Dragon vehicle was designed for short-term missions, and Behnken and Hurley's mission had only been expected to last a week. As a result, Behnken did not receive Amateur Radio on the International Space Station (ARISS) training on the ISS ham radio gear so he could take part in school contacts.

## Single Sideband on 2 Meters: The Other VHF Mode – Continued.

To my surprise, WA7KYM heard me and we made the contact without much signal strength to spare. Now, to be accurate, this contact has more to do with WA7KYM's "big gun" station (linear amplifier, low noise preamp and large antenna array) than it had to do with my 10 watts and a small whip. The key point here is that this contact would not have happened using FM and was only possible because of SSB.

### When and Where to Operate

The SSB portion of the 2m band runs from 144.100 MHz to 144.275 MHz and Upper Sideband (USB) is used. The 2M SSB calling frequency is **144.200 MHz**, so that is the first place to look for activity or to call CQ. SSB operation is not channelized, so you'll need to tune around to find other stations on the band. Compared with FM, adjusting the transceiver frequency is much more critical. If you are not precisely on the same frequency as the station you are listening to, the audio will sound odd.

This effect is demonstrated in this [video](#).



*SSB Effects Video. Click to view video.*

One of the realities of 2M SSB operation is that many times, no one is on the air. There is just not that much activity out there, compared to 2m FM. Some amateurs get discouraged, turn off the radio and miss the thrill of working distant stations during a band opening.

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## Single Sideband on 2 Meters: The Other VHF Mode – Continued.

To get started on 2m SSB, the trick is to get on the air at times when you know there will be activity— during VHF nets and VHF contests

### VHF Nets

You will need to check around to see if there is a SSB VHF Net in your area. Find out what time it is held and the frequency of operation. Checking into the net is a great way to try out SSB and to make contact with the 2m SSB operators in your area.



*VHF Contesting with a Portable Station.*

### VHF Contests

Think of VHF contests as “VHF activity weekend” since they are a great opportunity to just get on the air and work 2M SSB enthusiasts. The main contests are the ARRL June VHF Contest, the ARRL January VHF Sweepstakes, the ARRL September VHF Contest and the CQ Worldwide VHF Contest in July. For more information, take a look at this article: [How to Work a VHF Contest](#). You can also see an example of portable VHF Contest operations in this article and accompanying video: [VHF Contesting with a Portable Station](#).

#### Equipment

The required equipment for getting started on 2M SSB is pretty basic – a transceiver capable of 2M SSB and a 2M antenna. The 2M antenna you already have is probably *vertically polarized* since that is what we use for 2M FM, both mobile and base stations.

**Continued next column**

Kenwood TS2000



Yaesu FT-857D

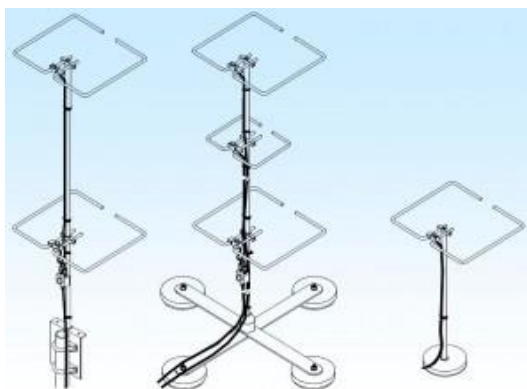


Icom IC-9100

*Transceivers offering SSB mode on VHF/UHF bands include the Kenwood TS2000, Yaesu FT-897D, and Icom IC-9100.*

All of the 1/4-wave and 5/8-wave antennas that are commonly used for 2M mobile work are vertically polarized. Most omni-directional base station antennas such as those made by Cush craft, Diamond, Comet, etc. are vertical, too. These antennas will work for SSB but most of the really active 2m SSB stations use *horizontally-polarized* antennas. Vertically-polarized stations can work horizontally-polarized stations but there will be a substantial signal loss (about 20dB). If vertical is all you have, then give it a try. If you can get a horizontal antenna, then your results will be much better.

The most common horizontally-polarized antenna on 2m is a Yagi mounted so that its elements are parallel to the ground. There are a variety of horizontally-polarized, omni-directional mobile antennas, such as the HO antenna made by M<sup>2</sup> (see <http://www.m2inc.com>).



*M2 Antenna Systems 2-meter HO Loop is a horizontally polarized omnidirectional antenna. Click to product page.*

**Continued on page 10**

## Single Sideband on 2 Meters: The Other VHF Mode – Continued.

### Get on the Air

This information is intended to get you started on your way to operating 2m on the SSB portion of the band. You will learn more as you get into it and you will find that most of the people hanging out down on sideband are friendly, knowledgeable and helpful. They are always happy to see a new operator on 2m sideband.

73, Bob K0NR

## RCARC Members participate in Cedar City's Fire Road Bike Race.



### Saturday August 15, 2020

As the sun peaked over the Eastern Mountains members of the Rainbow Canyon Amateur Radio Club (RCARC) were moving into position at their assigned observation locations along the race route. Their assignments are to provide communications via Ham Radio back to Race Communications located at Cedar City Community Park at 200 N and Main Street.

Starting in Cedar City, Utah, the race climbs over 7500' to vistas overlooking Zion National Park with giant aspen groves and Kolob Reservoir. About 85% dirt and 15% pavement. The race includes 2 options the 100K and 60K courses.

As riders pass each Aid Station RCARC member volunteers obtained Bib #'s of the first 3 riders and 1<sup>st</sup> female rider. This information is then passed on to Race Communications who in turn advise race officials at the starting point.

**Continued next column**

In addition, members assist riders in getting help if need, provide communication assisting medical, fire & law resources as well.

**See pictures below.**



**Riders just after start of race.**



**Riders moving through one of the canyons.**



**Additional race picture along the race course.**

**Continued on page 11**

**RCARC Members participate in Cedar City's Fire Road Bike Race. Continued.**



**Brad (WA7HHE) at his Kolob Reservoir Station waiting for riders to come by.**



**Aid Station 3 located at Kolob Reservoir. Pictured left is Bruno (KG7VVN).**



**Picture of Kolob Reservoir**

**Continued next column**



**Fred (KI7TPD) at Aid Station 5.**



**Bonnie (KI7WEX) at Aid Station 5.**



**Brody (K7VXV) on the course route.**



## **Twelve Commandments for Seniors**

- #1. It's okay to talk to yourself. There are times you need expert advice.**
  - #2. "In style" are the clothes that still fit.**
  - #3. You don't need anger management. You need people to stop pissing you off.**
  - #4. Your people skills are just fine. It's your tolerance for idiots that need work.**
  - #5. The biggest lie you tell yourself is, "I don't need to write that down. I'll remember it."**
  - #6. "On time" is when you get there.**
  - #7. Even duct tape can't fix stupid-but it sure does muffle the sound.**
  - #8. It would be wonderful if we could put ourselves in the dryer for ten minutes, then come out wrinkle free and three sizes smaller.**
  - #9. Lately, you've noticed people your age are so much older than you.**
  - #10. Growing old should have taken longer.**
  - #11. Aging has slowed you down, but it hasn't shut you up.**
  - #12. You still haven't learned to act your age and hope you never will.**
- "One for the road" means going to the bathroom before you leave home.**

## **Cedar City Half Marathon**

**September 12, 2020**



The Cedar City Half is a perfect high-altitude trainer for those preparing for full marathons, including the Saint George Marathon which is held only a few weeks later. This 13.1-mile closed-canyon course is one of the nation's fastest. Runners descend from 8,408 feet in elevation (Lat-Long: [37.594145 N, -112.912180 W](#)) to 5,600 feet at the finish line.

**Click on the URL below to see the race course map.**

<https://www.halfmarathons.net/course-map-cedar-city-half-marathon/>

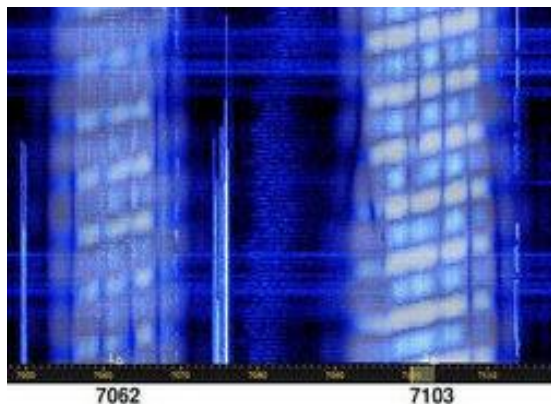
Rainbow Canyon Amateur Radio Club (RCARC) will again participate in this year's event providing Race Communications. Club members will be stationed along the race course route at Aid Stations and provide lead rider information back to Race Communications. This information will then be passed on to Race Command.

**For additional information click on the URL below:**

<https://www.cedarcity.org/567/Cedar-City-Half-Marathon>

## Russia-Ukraine "Radio War," HF Radars are Most Frequently Reported Ham Band Intrusions

The Russia-Ukraine "radio war" and the Russian over-the-horizon radar (OTHR) "Contayner" were the most frequently reported amateur band intruders during July, according to the International Amateur Radio Union Monitoring System (IARUMS). IARUMS characterized the ongoing broadcast radio war transmissions between the neighboring nations as "spiteful and provocative." Clandestine stations have appeared on 7.055, 7.090, and 7.110 MHz. IARUMS has determined that the heavy harmful interference from the Contayner Russian OTHR is coming from a location east of Moscow. Contayner OTHR signals have been monitored on various frequencies on 40, 20, and 15 meters, with a typical occupied bandwidth of about 12 kHz.



The Russian OTHR "Contayner" signal on 40 meters last fall.

"Sometimes, we also found the 20 kHz wide OTHR from the UK base in Cyprus, but less than in previous years," reported [IARUMS Region 1](#) Coordinator Peter Jost, HB9CET, in the [July newsletter](#). "Due to some band openings at 10 meters, some of us [also] heard several driftnet fishing buoys."

Continued on next column

Owing to vagaries in ITU *Radio Regulations* footnotes that relate to amateur radio frequencies, however, not every signal classified as an intruder is actually an intruder. It could be a signal that complies with the regulations, Jost pointed out to readers.

"The numerous footnotes of the ITU *Radio Regulations* must always be taken into account," Jost said. "For example, the 14,250 - 14,350 kHz range is primarily assigned to the fixed service in some [countries]. Since we cannot determine the origin of signals with absolute certainty, they are usually recorded as intruders, even if there is the possibility of an exception, due to a footnote."

The latest IARU-R1 Monitoring System newsletter includes reports from German radio amateurs on the large number of fishery buoys operating on 10 meters, where amateur radio is primary.

Listeners outside of Region 1 can monitor the HF online using one of the many [web-based SDR receivers](#). End.



## Campus Radio Clubs Face an Altered Fall Landscape

Many colleges and universities are preparing incoming students for fall classes, amid a complex landscape of re-entry plans due to COVID-19. Schools are pursuing a variety of instructional modalities, including live and asynchronous online classes, reduced-size or no in-person classes, and hybrid classes with some mix of it all. At schools where in-person attendance is allowed, the emphasis is on classes. Related student activities, such as sports, clubs, and so on may be nonexistent or extremely limited, due to the demands of



social distancing and the need to repurpose facilities and rooms for lower densities. As institutions are forced to make hard choices, it's going to be more important than ever for school amateur radio clubs to find ways to continue, even if in-person meetings are impossible. Some campus radio clubs continue to sponsor training and testing of new hams by using videoconferencing and asynchronous communications to offer instruction and support.

Continued next column

ARRL's [Instructor Discount Program](#) includes reduced-price self-study license manuals, including the popular [ARRL Ham Radio License Manual](#). The discount program is ordinarily offered to ARRL-registered instructors, *but ARRL has temporarily extended the program to any in-school students who call to order ARRL License Manuals by referencing their school radio club or their ARRL-registered instructor*. Call toll-free (888) 277-5289, Monday - Friday, 8 AM - 5 PM Eastern Time.

Club instructors can download free [instructional resources](#) for use with *The ARRL Ham Radio License Manual*, including PowerPoint slides, syllabus, and study review questions. Some college clubs are providing scheduled online license tests. For example, the [Columbia University Amateur Radio Club](#) in New York City and the [MIT Radio Society](#) in Cambridge, Massachusetts, have scheduled online license examinations.

To make club resources available when in-person gatherings are not possible, some college clubs have remote-enabled their radio stations. California Polytechnic (Cal Poly) recently shared the details of the monthly ARRL Collegiate Amateur Radio Initiative ([CARI](#)) web conference in July. The monthly [online](#) conferences continue into the fall.

The [Collegiate QSO Party](#) is planned for September 19 - 20. The QSO Party is an operating event focused on amateur radio clubs at colleges and universities around the world. Each fall, the Collegiate QSO Party provides an opportunity for clubs to demonstrate amateur radio to new members, engage with alumni, and promote activity throughout college and university communities. Read [more](#). -- Thanks to Bob Inderbitzen, NQ1R

## Save the Dates for the following E-Comm & CERT Activities.

### E-Comm Trailer Orientation Opportunity

**When:** Wednesday, September 16, 2020 from 6:00 P.M. to 8:00 P.M. and Saturday, September 19, 2020 from 10:00 A.M. to 12:00 P.M. Participate in one or both.

**Where:** At the new Iron County Road Yard Shop located across the street from the Animal Shelter on Kitty Hawk Drive. Between Bull Dog and Airport Roads.

The Iron County E-Comm Group is inviting all E-Comm members and others to take this opportunity to learn how to set up the E-Comm Communications Trailer. This will include assembling the antennas, placing them outside the trailer, setting up the radios, connecting the unit to electrical power and or a generator and much more. In addition, you will learn how to demob the unit and place everything back in the trailer for its next assignment. **Should you have any question call John Higley at 801-850-7558**

Hope to see you there. **Please RSVP to** [cedarcity.rcarc@gmail.com](mailto:cedarcity.rcarc@gmail.com)

### Upcoming CERT Work Party

**When:** Saturday, September 26, 2020 at 8:00 A.M.

**Where:** Meet at the new Iron County Road Yard Shop located across the street from the Animal Shelter on Kitty Hawk Drive. Between Bull Dog and Airport Roads.

Iron County CERT Members are being asked to come and assist in gathering all CERT supplies that are now housed at the Gold Cross Ambulance Offices and the Visitors Center. Then transport them to the County Yard Shop for storage. In addition, inventory the CERT Trailer and set up the front trailer area for communications. If you can assist please wear your CERT Shirt and bring a dolly if you have one. Please let Terry Meissner or George Colson know if you'll be there.

Continued next column

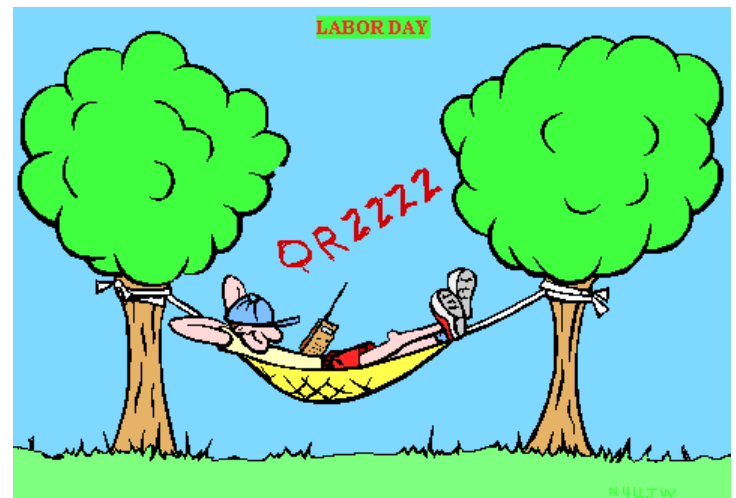
## Combined E-Comm & CERT Functional Exercise **Continued**

**When:** Thursday, October 15, 2020 at 6:00 P.M.

**Where:** At the new Iron County Road Yard Shop located across the street from the Animal Shelter on Kitty Hawk Drive. Between Bull Dog and Airport Roads.

This will be a combined CERT & E-Comm functional exercise. The topic will be nighttime communications. Bring your FRS Radio and a handheld radio if you are a Ham.

Please let Terry Meissner or George Colson know if you'll be there. End.



Happy Labor Day

## New Smartphone App Can Identify Unknown Data Modes

An incredible number of digital-mode radio signals occupy the spectrum, and it's not always possible to identify the particular mode of operation. CW, PSK31, and FT8 are pretty easy, but how about CIS405, STANAG, or CHIP64? A new smartphone app can simplify things. [SignalID](#) can recognize about 20 signal modes (more may be on the way), in just 5 seconds of recording time. The app is open source and free.

Using it is simple. Once the frequency and bandwidth have been set, the user places the cell phone's microphone near the receiver's speaker, presses the large button, and waits for 5 seconds. The quieter the external environment is, the fewer errors.

"The algorithm is based on frequency, [so incorrect tuning] will result in an erroneous detection. The recording is limited to 5 seconds, for practical reasons. Mode recognition may require several attempts, the developer, Tortillum, said, and upgrades are already in the works. "The easiest way to try [it] is RTTY or STANAG," the developer added.

The very few comments so far from users suggest some further work may be needed, but they praised the concept. The developer invites additional [comments](#).

The application, which includes a complete list, could prove a valuable tool in determining the types of emissions that may stray into amateur radio bands. A [demonstration video](#) is available. -- *Thanks to Southgate Amateur Radio News via Stephen Walters, G7VFX*

## Your actions save lives

Keep Utah healthy.

Wear a mask, wash your hands, keep your distance.

## New Contest for Portable Stations to Debut

A new amateur radio contest for portable operators -- the Fox Mike Hotel Portable Operations Challenge ([POC](#)) -- will debut October 3 - 4. The event is aimed at leveling the competitive playing field between fixed stations and portable stations. [Scoring](#) for the POC, based upon a kilometers-per-watt metric, will be handicapped in favor of



the portables. The contest is the brainchild of Frank Howell, K4FMH. Sponsors include *National Contest Journal* ([NCJ](#)) -- an ARRL publication -- but the POC will not be an official *NCJ* or ARRL contest.

"*NCJ*'s role is to encourage hams who don't contest to give it a try," *NCJ* Editor Dr. Scott Wright, K0MD, said. "It will encourage activity by operators who are limited by real estate and do not have a full-blown contest station. Events like this stimulate more interest in contesting, and this will have an international scope to give chances to snare some new DXCC entities."

The [contest rules](#) say scoring will be calculated using the distance between stations (Maidenhead grid squares) in kilometers divided by power output in watts. Fixed (QTH) stations will compete against portable (P) stations on 80, 40, 20, 15, and 10 meters. Allowable modes include phone, CW, and digital.

The exchange is call sign, station class (P or Q), consecutive serial number, and four-character grid square.

Contact [Howell](#) for more information.

## August E-Comm Meeting Pictures



Don (WA7GTU) addressing the E-Comm Group.



The rest of the E-Comm Group listening to Don (WA7GTU).

### E-Comm Meeting Topics

Listed below are a few of the items Don presented to the E-Comm Group.

1. Status of the Intertie.
2. Calling Tree update.
3. Current member status and new members.
4. Status of the E-Comm Trailer.
5. E-Comm Vests.
6. Upcoming E-Comm exercises
7. Status of Digital Capability. Brad (WA7HHE).
8. DSTAR moving to the Hospital. No time frames.
9. ARES Status.
10. UTAH VHF Society. Hamclubonline.com
11. Use of remote base stations.

## August CERT Meeting Pictures



CERT Members listening to George Colson in regards to upcoming Training and Work Projects. See page 15 for additional information.



George Colson addressing the CERT members.



Additional picture of CERT members listening to George Colson.

## IARU Announces HF Digital Mode Band Plan Review

An International Amateur Radio Union (IARU) working group has been formed to develop solutions to reduce congestion within very popular mode segments while preventing mutual interference between "incompatible modes" as much as possible. The working group includes representatives of the three-regional band-planning committees, marking the first time the three IARU regions have joined together to directly coordinate band-planning efforts.

"Because frequency allocations and amateur radio operating interests vary in different parts of the world, the development of band plans –



voluntary guidelines on the use of the spectrum that is available to radio amateurs -- is a responsibility of the three IARU regional organizations," the IARU explained in announcing the working group. "Each of the three regions has a band-planning committee to focus on this work."

The IARU says this approach to band planning has generally kept pace with the evolution of amateur radio operating, but the explosive growth in HF digital modes, particularly FT8, has led to perceived overcrowding of HF digital-mode band segments.

Continued next column

The new working group has already had fruitful discussions with the *WSJT* Development Group headed by Joe Taylor, K1JT. Additional discussions including other HF stakeholders will be held as part of a fundamental review of the different HF digital modes, and how they can best be categorized and arranged to share the limited spectrum available.

In recent years, moves have been made to bring the regional band plans into alignment wherever possible. Final approval of any band plan revisions typically occurs during regional conferences of IARU member-societies, held every 3 years on a rotating basis.

Due to recent administrative changes, however, revisions can be implemented without having to wait for the regional conferences. End.

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## Citizen Corps Grants Applicable to Amateur Radio Serving Local Emergency Management

Grants have been released in Florida that can help local ARES® and similar communications groups obtain funding for communications gear. [Volunteer Florida](#) (Florida Commission on Community Service) was organized in 1994 and administers millions of dollars annually in federal and state grants. They've been offered for Citizen Corps groups for several years. In June 2003, ARRL became an official affiliate program of [Citizen Corps](#), an initiative within the [Department of Homeland Security](#) to enhance public preparedness and safety.

Continued on page 19

## Citizen Corps Grants Applicable to Amateur Radio Serving Local Emergency Management (Continued from page 18)

Volunteer Florida works with local Councils, stressing ICS-based volunteers, and to coordinate, streamline and improve local volunteer efforts. This year there are multiple \$5-10,000 awards available through this program. The key is to work with your local Emergency Management department, as an ARES® group alone does not appear to be an eligible applicant for these grants despite the ARRL being an affiliated organization. An emergency management agency or Sheriff's office appear to be eligible. A representative of Volunteer Florida said they are very open to submissions from Emergency Management departments.

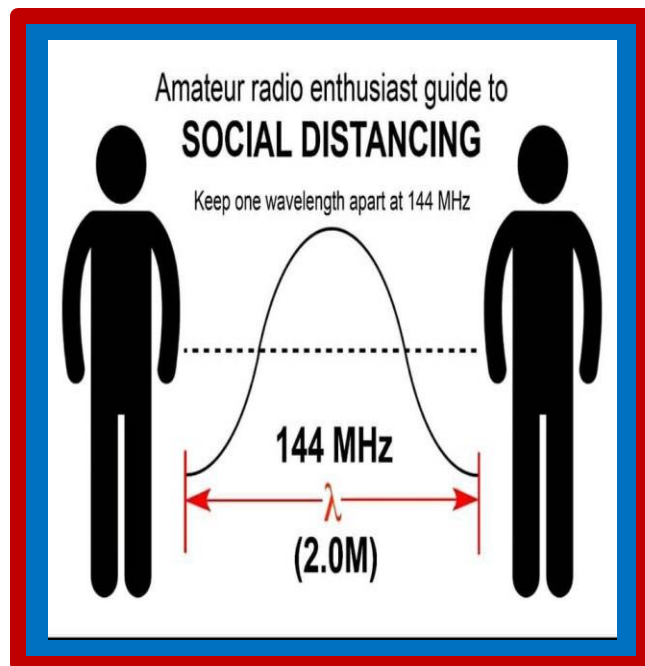
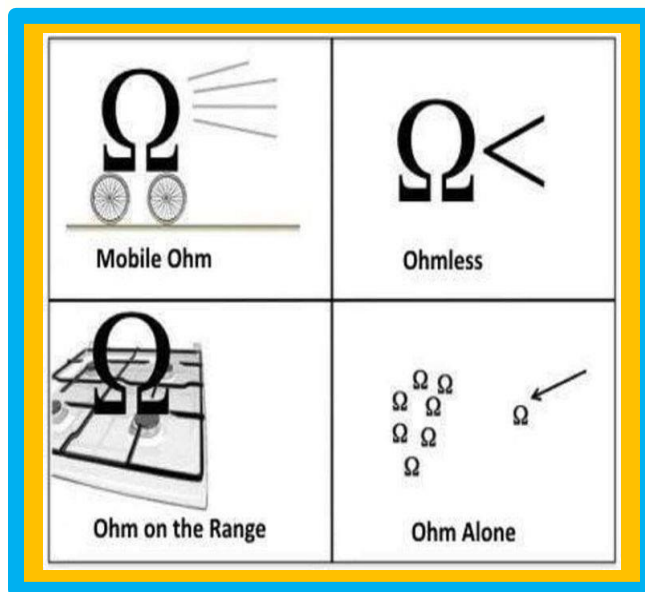
In Alachua county, the specific grant of interest would seem to be equipment - replacement storage batteries, chargers, and additional standardized go-boxes for volunteer communicators at shelters and other facilities.

The important asset that local ham radio clubs bring to the table for such a grant is volunteer time, which is considered a "match" item valued at over \$24/hour. The county's ARES administrators have been keeping track of time ARES operators spend volunteering at the county EOC keeping gear functional, and practicing state and federal (SHARES) nets. ARES also has extensive documented training in monthly meetings, soldering sessions, exercises, etc.

Calculations suggest that the county ARES would have over \$16,000 of potential "match" as a result of the items likely to be completed within the grant period of July 1, 2020, to June 30 2021.



While the 2020 -2021 deadline for applications has passed, this is a recurrent grant and other groups might wish to become better acquainted with the grant program now in order to gain funding for items such as updated communications gear, PACTOR modems, more suitable antennas, shelter communications gear, etc., next year.  
- Gordon Gibby, MD, KX4Z, Alachua County, Florida, ARES End.



# The Mystery of Ham Radio's "Magic Band"—6 Meters

The nickname for 6 meters (50 to 54 MHz) implies that there's something mysterious and even spooky taking place — and there is!

Let's say you turn on your transceiver and tune to 50.125 MHz, the SSB calling frequency on the 6-meter band. Chances are you'll hear nothing but noise for hours on end. But at times, you'll suddenly hear voices from hundreds and even thousands of miles away. These signals may remain for minutes or possibly hours before abruptly vanishing.

What's going on here?

The magic behind the Magic Band is caused by a phenomenon known as *sporadic E*, often abbreviated as  $E_s$ . "Sporadic" refers to the fact that it comes and goes randomly. The "E" is a reference to the E layer of our ionosphere, a region about 100 miles above the surface of Earth.

When sporadic E is in play, clouds of ionized gas form in the E layer and act like mirrors, reflecting radio signals over great distances. These clouds appear without warning and disappear just as quickly. They even move around, causing

signals to come first from one area, and then another. The reflections are so efficient that there is little signal loss. As a result, you don't need high power or big antennas to enjoy sporadic-E communication. Just a wire dipole antenna will do the trick. Dipoles for 6 meters are only about 9 feet long.

Most signals bounce off the clouds and come back down at distances ranging from about 500 to 1,500 miles. This is known as *single hop* sporadic E. However, there can also be more than one cloud, and signals can sometimes bounce off one cloud, return to Earth, bounce again, and then reflect off another, more distant cloud! This is called *double hop* sporadic E, and it can cause signals to span entire continents.

No one knows what causes sporadic-E clouds to form. It's one of the enduring mysteries of radio propagation that scientists have yet to explain. We know that sporadic E tends to take place between May and

August. There's another period in December and January. But sporadic-E propagation can appear at any time, which is part of what makes it so strange. It usually happens between late morning and late afternoon, but there have been reports of sporadic E occurring in the middle of the night as well.

Sporadic E isn't just a 6-meter phenomenon. You can encounter it on 10 meters and, when it is particularly intense, on 2 meters. Some sporadic-E fans keep radios parked on 50.125 MHz, waiting for the sudden appearance of signals.

The popularity of the FT8 digital mode on 6 meters has also proven to be a valuable tool for staying on top of sporadic-E activity. The most popular FT8 software, WSJT-X, can monitor common FT8 frequencies (such as 50.313 MHz) and automatically report activity in real time to internet sites such as PSKreporter at [pskreporter.info/pskmap.html](http://pskreporter.info/pskmap.html).



PSKreporter can display reports from FT8 operators on detailed maps. This image shows 6-meter sporadic-E activity on the morning of June 12, 2020. Each red "balloon" represents a ham station, and the red lines indicate which stations have been in contact with each other.