

RAINBOW CANYONS AMATEUR RADIO CLUB NEWSLETTER

CEDAR CITY, UTAH



Club Websites: www.rcarc.info OR www.rainbowcanyons.com Number 3 – Vol. 4 – April 2021

Club Meeting Information

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

2020 Club Officer's

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CQ, CQ, Happy Easter



Presidents Message

Greetings fellow HAMs!

Hope everyone is having a great 2021! The senior center has completed their renovations and this means that we will be able to start meeting again in April. As the weather warms, we have many opportunities to get outside and play with the radio. Also, in just a few months we will also have Field Day (end of June) so start thinking about what we should plan. This July we will also have a swap-meet so start thinking about what radio gear you can sell (so you can buy some more radio gear!). For our April meeting I (KI7TPD) will be giving a presentation on "How to Program Your Radio." This should be a very educational talk and don't forget to bring your programming cable so we can get you set up and ready to go.

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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.
7: pm. Wednesday – Morse Code Net- 146.980. - offset. PL 100
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.

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

April 13, 2021

RCARC Club Meeting.

Back to the Senior Center

7:00 pm. Cedar City Senior Center,
489 E. 200 South.

Presentation: Fred Govedich

(KI7TPD) will present

"Programming your radio"

May 11, 2021

RCARC Club Meeting.

7:00 pm. Cedar City Senior Center,
489 E. 200 South. **Program to be
determined.**

June 8, 2021

RCARC Club Meeting.

7:00 pm. Cedar City Senior Center,
489 E. 200 South. **Program to be
determined.**

President's Message

Now that it is getting nice outside, I hope you can get a chance to play, share, and have fun on the radio! I also hope that you are learning new things so that you can share them with your fellow HAMS! We all have strengths and weaknesses but we are all interested in radio communications and can benefit from each other. If you are interested in any aspect of HAM radio please explore the topic, experiment, and share what you have done with the group! That is what makes this such a fun hobby! Don't be shy, we are all friends here!

In service,

Fred Govedich (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

Come and get them

At this month RCARC meeting Fred (KI7TPD) will take orders for RCARC Hat, Shirts and Name Badges. Please come join fellow club members and get your order(s) in.

April 13th at 7:00 pm.

Cedar City Senior Center.

489 E. 200 South. Cedar City.



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



Happy Easter





Breakfast & Friendship Net Awards

Breakfast Net		Friendship Net	
First Place	Second Place	First Place	Second Place
KI7WEX - Bonnie	KE6ZIM - Johnny	KI7WEX - Bonnie	K7NKH - Lee
KI7TPD - Fred	K7ZI - Dick	KI7TPD - Fred	K7ZI - Dick
KI7LUN - Scott	KI7LUO - Melody	KJ7OZI - Paul	KI7DRE - Larry
K7DVP - Vernile	K7ZZQ - Johnny	KI7SXJ - Isaiah	Third Place
KB7UMU - Sylvia	Third Place	N7TCE - Merlin	KB7UMU - Sylvia
N7SND - Larry	KG7PBX - Linda	KJ7LTQ - Brant	N7SND - Larry
KI7LUI - Tom	KG7YIC - Ken	N7WWB - Darlene	
KC6WFI - Tony		K7HDX - Ron	
		W6DLW - Dennis	
		KI7LUM - Bruce	
		KA7J - Lance	

Scientists Forecast that Solar Cycle 25 Could Actually Be Epic for Ham Radio Operators

Posted by [Wayne KE8JFW](#) on August 14, 2020 at 1:11 pm

While predictions from solar physicists about the fate of Solar Cycle 25 have been categorically tepid up to this point, there may be more than just a ray of hope for Hams still suffering through the tail end of Cycle 24's less-than-stellar sunspot performance.

This jolt of optimism comes from the recent paper, "Overlapping Magnetic Activity Cycles and the Sunspot Number: Forecasting Sunspot Cycle 25 Amplitude." Published in late June by Scott W. McIntosh, Sandra C. Chapman, Robert J. Leamon, Ricky Egeland, and Nicholas W. Watkins, the document concludes that **"...sunspot cycle 25 will have a magnitude that rivals the top few since records began."**

This outcome would be in stark contrast to the community consensus estimate of sunspot Cycle 25 magnitude." The scientists predict "with 95% confidence that the Cycle 25 amplitude will fall between 153 and 305 spots," and with 68% confidence that the amplitude will be 233 spots.

Why is this important to Amateur Radio enthusiasts? Generally speaking, a dearth of solar activity makes working the bands from 14-28 MHz (20 through 10 meters) and 50 MHz (6 meters) a challenge. More sunspots during a cycle's solar maximum means better skip propagation, improved DXing, more log books filled with "never-thought-possible" QSOs, and happier Hams.

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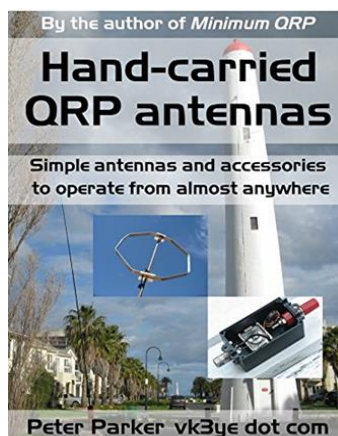
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RCARC April Meeting Book Giveaway

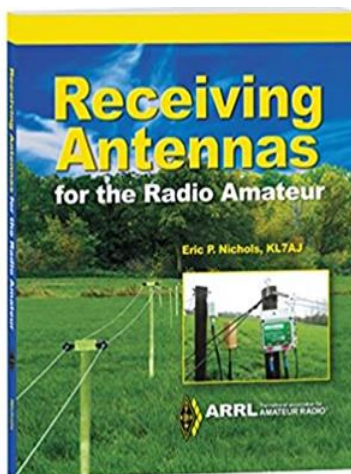
The book shown below will be awarded to one of our RCARC members at our club meeting on April 13, 2021

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



RCARC Book Giveaway Winner.

The winner of the March 9, 2021 book giveaway, ARRL's Receiving Antenna's is Tammy Nesmith (KI7LVB).



**Congratulations
Tammy**

Contact Us.

Mailing Address:

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

Club E-mail:

cedarcity.rcarc@gmail.com

Newsletter E-mail:

rcarcnewsletter@gmail.com

Website

www.rcarc.info

www.rainbowcanyons.com

Face Book Page:

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

To Join RCARC or Pay Dues:

Go to 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.

Attention

RCARC

The April Monthly Club Meeting will be moving back to the Cedar City, Senior Center.

Time - 7:00 PM.

Address – 489 E. 200 South. Cedar City.

Note

Masks will be required and There will be Social Distancing.



Buzz's April Safety Tip(s)



GENERAL PRECAUTIONS SAFETY IS EVERYONE'S RESPONSIBILITY

Never take shortcuts.

Your safety is your personal responsibility.

Always follow the correct procedures.

Take responsibility and clean up if you made a mess.

Clean and organize your workspace.

Ensure a clear and easy route to emergency exits and equipment at home or at work.

Be alert and awake no matter where you are.

Be attentive at all times to your surroundings.

Never take risks when it comes to safety.

Obey safety signs, stickers, and tags.

Take short breaks when you keep up a repetitive motion for a long period of time, and sit, stand, or walk with good posture.

Report serious injuries immediately and get emergency assistance.

Keep things in perspective. Hazards may be limitless, so focus on the most likely risks first.

- Strained backs and sliced fingers may be more popular in your workspace than would the risk of flooding (as in a basement office) or the risk of wild animals cutting loose (as in a zoo).

THIS MONTH'S FOCUS IS LIFTING AND CLIMBING SAFELY.

Always use both hands when lifting a heavy or cumbersome object.

Adopt a proper stance for lifting: put the strain on your legs, not your back (crouch at your feet, keep your back straight, and don't bend at the waist).

Test the weight before you lift something up completely; it might be too late if you realize a few seconds later that it's too heavy or cumbersome for you.

- An easy way to do this is to nudge it with your foot first.

Consider a back brace if the work is heavy or you have a sensitive back.

Move your feet, not your back, when you want to travel or turn while carrying a heavy load.

Lift slowly and smoothly.

Keep your burden close to your body; this means less strain on you.

If your load is too heavy for you to handle alone, don't be shy—ask for help!

Ensure ladders are secure and steady before climbing aboard.

Use safety harnesses if your job includes heights.

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Rainbow Canyons Amateur Radio Club
Treasurer Report, March 9, 2021

Bank statement balance - February 1, 2021	\$1,860.43
*Dues received	100.00
Rocky Mountain Power	<u>- 16.18</u>
Bank statement balance February 26, 2021	\$1,944.25

*Dues received \$100

Family payments of \$20 - received from
KG7YIB & KG7YIC, KB7VAO & KI7FZP
Individual payments of \$15 - received from
NR7T, K6QOG, KA7SEZ, N7CWO

Activity since bank Statement Date - amounts are not included above and will be
reflected in next month's bank statement and treasurer's report

Additional Dues received and deposited after above bank statement date: \$60.00

Individual payments of \$15 - received from
K8NPA, KI7WEW, KJ7LTQ, KE6ZIM

Accounts payable due 3/17/2021 \$16.11

There is a automatic monthly deduction to Rocky Mountain Power to pay for the
electricity used by the 98 repeater up on Iron Mountain

Dues can be mailed or dropped off to me at address below. There is a membership form
to include in the newsletter. We hope to have in person meetings starting April 13, 2021.
Dues can also be paid in person at that time.

Submitted by Linda Shokrian KG7PBX, 2021 RCARC Treasurer
435-867-5914
2438 W Carmel Canyon Dr., Cedar City, UT 84720

THIS MONTH'S FOCUS IS LIFTING AND CLIMBING SAFELY. CONTINUED FROM

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Eliminate distractions when working on a roof, scaffold, or other elevated platform.

More than ever, stay focused and alert!

Keep an eye out on the floor to ensure it's free of obstacles and spills. If it isn't, get cleaning!

Never climb on improvised

ladders. Shelves and storage units are poor substitutes. Don't be lazy, and find a proper solid ladder.

Don't let appearances fool you. Railings might appear solid and fixed, but they might be improperly secured; at least, test them first. End.

Folkscanomy: Ham and Amateur Radio

Folkscanomy: A collection of books and text derived from the efforts of volunteers to make information as widely available as possible. Because the metadata related to these scanned books are often done outside the library or cataloging industries, finding material can be more difficult.

The *Folkscanomy* collection attempts to add a layer of classification for easier navigation. Please check out the below URL to view these very old documents that have been scanned in and saved for future generations.

URL

Folkscanomy: Ham and Amateur Radio:
Free Texts: Free Download, Borrow and Streaming: Internet Archive

Continued next column

Additional, Ham Radio Magazine Archive's.

See below URL.

Left click on URL then depress control and left click mouse to access the archive.

[ham_radio_magazine : ham radio magazine - Internet Archive](#)

Once page loads click on the magazine to turn pages or use the left/right arrows to the bottom right of magazine in the task bar. Use the plus or minus icon to make print larger or smaller.



March Pastry Pub Breakfast Pictures



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Ham Radio Operators in Action 88 Years Ago

Southern California Amateurs Rise to Earthquake Emergency

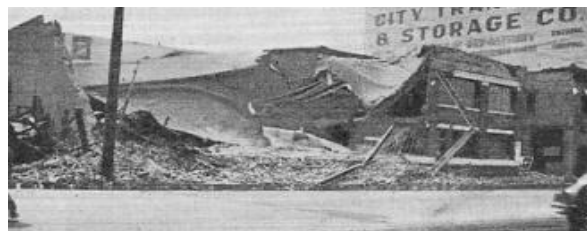
May 1933 QST Article

This could be a headline for today, tomorrow, or from 83 years ago. It was the latter, following the magnitude 6.4 earthquake that hit the [Long Beach](#), California region. Per Wikipedia, "An estimated \$40M worth of property damage resulted, and between 115 and 120 people died. Many of these fatalities occurred as people ran out of buildings and were hit by falling debris." That paled, though, in comparison to the magnitude 7.8 [San Francisco](#) earthquake in 1906, where massive destruction occurred and upwards of 3,000 people died. As usual, radio amateurs were some of the first emergency responders on the scene, setting up essential communications centers to assist with search and rescue operations. The Federal Radio Commissions (FRC), precursor to the FCC, issued a note of appreciation.



Southern California Amateurs Rise to Earthquake Emergency

By Clinton B. DeSoto*



Characteristic of Long Beach's Demolition is this view of ruins near where an amateur emergency station was set up. The earth went mad, heaving itself in a giant, retching shudder

Ten minutes after the California earthquake an amateur station was on the air, telling the world.

Through the night, other amateurs emerged painfully from the wreckage, salvaged parts and tubes and power-supply facilities sufficient to get their stations back on the air again.

Check out the Video at the following URL: [Earthquake Video](#).

<https://www.bing.com/videos/search?q=long+beach+1933+earthquake&docid=608054458779187338&mid=BECD966609DF04C36EBE966609DF04C36E&view=detail&FORM=VIRE>

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Southern California Amateurs Rise to Earthquake Emergency

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Aid was offered the civic and military authorities in control of the situation; personal messages to relatives and friends of earthquake survivors commenced to trickle in; an avid press pleaded for information. The amateur emergency work of the Southern California earthquake on March 10th began in grim, actual earnest.

Six hours elapsed before any vestige of wire line service was through to Long Beach, center of the stricken area. It was four hours before broadcast station KFOX regained the air, the roof having fallen in the dynamo room. During this time amateur radio was the sole means of announcement and communication, and during the week following, when wire lines could not handle any appreciable percentage of the traffic, amateurs stepped to the fore as a communication system second to none in usefulness and efficiency.

The first official messages to be transmitted were from Mayor Harris of Long Beach and Mayor Porter of Los Angeles to the Adjutant-General of the state, requesting aid and reporting the loss of many lives. These were QST'ed by Francis M. Sarver, W6AOR, of Los Angeles, and by stations in the Long Beach and San Diego areas. A later message was addressed to Army officials at Washington, via WAR, requesting that the military at San Diego and surrounding points be instructed to operate in the emergency zone. When they did take over control, Major Albert M. Jones, head of the intelligence department of the 9th Corps Area, invoked the aid of amateur radio in handling his branch of the work, with schedules between Long Beach and San Pedro.

A five-station net centering on W6GSR in Long Beach was for a considerable time the only means of communication with the Navy Yard at San Pedro, the National Guard headquarters there, and the governor's office and state motor patrol officers at Sacramento. George F. Moynahan, Jr., W6AXT, was the Sacramento station, with C. N. Fisher, W6FFN, Covina, W6ETV, San Pedro, and Vernal Routh, W6CJQ, Los Angeles, as relay points. Messages were handled for Governor Rolph and Lt. Governor Frank Merriam. W6GSR was put out of commission by a severe shock at midnight, but was back on the air within an hour with a hastily rigged small portable set.

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The Los Angeles Police Department through municipal police radio station KGPL broadcast an urgent request for the erection of an amateur 'phone station at Los Angeles Patriotic Hall. Amateurs Nikirk, Cook and Strople of Pasadena responded and got W6BZC on the air, operating for 30 hours continuously. On the morning of March 13th, KFI broadcast a call for four amateur operators with portable receiving and transmitting equipment - and probably got them, although no further details are available.

Federal Radio Commission

Washington, D. C.

March 18, 1933

The American Radio Relay League,
38 LaSalle Road,
West Hartford, Conn.

Attention: Mr. K. B. Warner

Dear Sir:

The Commission takes pleasure in informing you that it has received information commending the amateurs of Southern California for the splendid work done by them in handling communications in the recent earthquake area.

The names of the individual licensees who cooperated in this work are not known to the Commission. However, it is known that amateurs have always rendered every possible assistance during times of such emergencies, and it is hardly necessary to add that the Commission believes such service to be of the highest order of importance.

It will be appreciated if you will express through the medium of the American Radio Relay League the Commission's appreciation of the prompt and efficient action which was taken by amateur licensees in bringing aid to the stricken area.

Very truly yours,

/s/ Harold A. LaFount,
Acting Chairman.



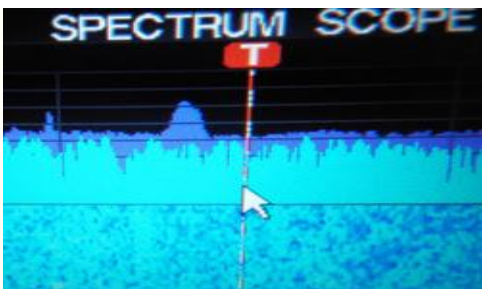
Emergency traffic flowed without pause from the key at W6BVD

Edward Seeley, W6GXS, is shown at the operating position, while M. J. Campbell, W6UY, takes down messages from earthquake survivors via the emergency telephone line.

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Approaches to Tackle Noise Problems Vary, Remedies Elusive

RF noise is a frequent discussion topic among radio amateurs. A proliferation of electronics has cluttered and complicated the noise environment; it's not just power lines anymore. Unless isolated from civilization, most hams experience RF interference (RFI) and spectrum scopes on modern transceivers can make it much more apparent.



Various approaches to address the apparently worsening noise floor have been taken around the world, some addressing lax regulation.

"We all want to enhance our ability to copy the weak ones by increasing our signal-to-noise ratio," Alan Higbie, K0AV, said in his March/April *NCJ* article, "Tracking RFI with an SDR One Source at a Time." He suggests practical methods for individual radio amateurs to improve their own noise environment. "We can do that by reducing the noise on each band that we operate. Lowering the noise floor increases the relative strength of weak signals. Those who live in typical residential environments find that locating and eliminating RFI sources is a never-ending process. It is much like weeding a garden."

The International Amateur Radio Union ([IARU](#)) warns against complacency. "Radio amateurs cannot sit back, because even if the desired noise limits are agreed, there are many rogue manufacturers and dealers who will happily sell noise-generating devices,

leaving out filter circuits to cut costs," IARU said. The IARU has urged member-societies to get involved.



Small household "wall warts" are typically noisy switching power supplies.

The FCC Technological Advisory Council ([TAC](#)) -- a Commission advisory group -- [initiated an inquiry](#) in 2016 looking into changes and trends to the radio spectrum noise floor to determine whether noise is increasing and, if so, by how much. The TAC had encouraged the FCC to undertake a comprehensive noise study in 1998, and cautioned the FCC against implementing new spectrum management techniques or initiatives without first concluding one.

In 2017, the FCC Office of Engineering and Technology (OET) invited comments on a series of (TAC) spectrum-management questions. ARRL, in its comments, took the opportunity to strongly urge the FCC to reinstate the 2016 TAC noise floor study, which, ARRL asserted, was terminated before it even got started. ARRL urged the FCC to "depart from the traditional regulatory model" that placed limits only on transmitters and called for "a 'holistic' approach to transmitter and receiver performance."

- [ARRL offers a wide range of information on RFI on its website.](#)
- [Paul Giancolo, W1VLF, will offer "Finding and Fixing RFI" as part of the \[ARRL Learning Network\]\(#\) webinar series, on Tuesday, April 20, at 1700 UTC.](#)
- [ARRL Northwestern Division Director Mike Ritz, W7VO, will offer "HF Noise Mitigation" as part of the \[ARRL Learning Network\]\(#\) webinar series, on Thursday, April 22, at 1930 UTC.](#)

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Approaches to Tackle Noise Problems Vary, Remedies Elusive. Continued.

Greg Lapin, N9GL, represents ARRL on the TAC and chairs the ARRL RF Safety Committee.

"Perhaps the best result that we obtained was an indication that illegal devices, mainly LED lights, were in circulation, and the Enforcement Bureau agreed to look into it," he told ARRL. "We never heard what they found out, but recently,



I was buying some LED bulbs over the internet from a site in Texas, and they were selling non-FCC approved lights -- and didn't seem to care." Lapin said his complaint went nowhere, and the TAC's focus has been nudged in the direction of addressing 5G issues.

The Deutscher Amateur Radio Club ([DARC](#)) has been working on developing a noise-measurement system that approximates methods used by the International Telecommunications Union Radiocommunication Sector (ITU-R). DARC reported that 35 of these electrical noise area monitoring systems ([ENAMS](#)) have been delivered, and it's seeking another 20 locations as part of the effort to monitor noise interference on the HF bands. DARC said the ENAMS can help to make scientifically reliable statements about interference levels.

IARU sees wireless power transmission (WPT) as an impending major noise threat, especially from WPT electric vehicle (WPT-EV) charging systems. "For the amateur service, given the planned density of WPT-EV systems, it is calculated that there will be a widespread and serious impact in the vicinity of WPT systems" from spurious emissions, said a 2019 *EE Publishers* [article](#), written by "Amateur radio societies concerned about the HF noise floor." The article also said, "To ensure a low probability of harmful interference to radiocommunication services, further study is required." Read [an expanded version](#). End.

March Pastry Pub Breakfast Pictures Continued



February 2021 Volunteer Monitor Program Report

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the FCC to enhance compliance in the Amateur Radio Service.

To date, Volunteer Monitors during February reported 1,762 hours monitoring the HF frequencies and 2,158 hours monitoring VHF frequencies and above. The Volunteer Monitor Program Administrator issued 10 Advisory Notices. An Advisory Notice is an attempt to resolve rule violation issues informally before FCC intervention.



- Operators in Holdenville, Oklahoma; Luzerne, Michigan; Miami, Florida, and Merrick, New York, received Advisories concerning operation outside their license class.
- Operators in Magalia, California; Jefferson, Georgia, and Redway, California, received Advisories concerning interference to repeater systems and HF net operations.
- An operator in Mansfield, Arkansas, received an Advisory regarding failure to properly identify.

Continued next column

- An operator in Charlottesville, Virginia, received an Advisory concerning improper bandwidth that resulted in interference.
- A desert racing association in Odessa, Texas, received a warning about the use of amateur 2-meter frequencies for racing events.

The Volunteer Monitor Program Administrator had two meetings during February with FCC Enforcement Bureau personnel. -- *Thanks to Riley Hollingsworth, K4ZDH, VM Program Administrator.* End



Maritime Radio Day is Set for April

03/08/2021

The 10th anniversary of Maritime Radio Day ([MRD](#)) will take place from 1200 UTC on April 14 to 2200 UTC on April 15. The annual event commemorates nearly 90 years of wireless service for seafarers. Radio amateurs and shortwave listeners are welcome and should [register](#) in advance by April 1.

Stations such as coastal radio stations and ships may participate only if operated by former commercial or Navy operators, or by radio technicians who worked on the installation and/or maintenance of naval equipment. Former Merchant Marine Radio Operators or former Ship's Electronic Technicians are encouraged to participate.

All traffic must occur around the following international naval frequencies on amateur radio bands: 1824 kHz; 3520 kHz; 7020 kHz; 10,118 kHz; 14,052 kHz; 21,052 kHz, and 28,052 kHz. The primary working frequency is 14,052 kHz. There is no power limit. Participants exchange QSA (signal strength, 1-5), QRK (readability, 1-5), name, call sign of last or favorite ship/aircraft/maintenance company, and "additionally a tr, msg and/or a QTC, if you like." End.



Scientists Forecast that Solar Cycle 25 Could Actually Be Epic for Ham Radio Operators Continued from page 3

You can read the highly technical details of how the “Overlapping Magnetic Activity Cycles...” team arrived at their sunnier conclusion about Cycle 25 [here](#). On the opposing side, here’s the [latest](#) from the NOAA’s Solar Cycle 25 Prediction Panel, which offered this dimmer view of what lies ahead: Cycle 25 will be much like Cycle 24, with a minimum peak sunspot number of 95 and a maximum of 130.

Will Solar Cycle 25 exceed all expectations or produce the same lackluster results as its predecessor? Only time will tell, but until then, our collective fingers are crossed. End.

Comm Academy 2021 Set for this Month, Online.

Disasters Here, There, and Everywhere - Are We Ready? Comm Academy is an emergency communications and amateur radio conference to be held April 11-12. [Registration](#) is completely free, and you must register to gain access to the complete schedule and academy materials. It is entirely virtual and hosted online.

Headquartered in Seattle, Washington, Comm Academy is attended and supported by organizations including ARES; Auxiliary Communications Service (ACS); EOC Support Teams; RACES; Civil Air Patrol; Coast Guard Auxiliary; REACT; and CERT, among others. All interested in emergency and amateur radio communications are welcome. Learn, network, and share your experiences with others.

The Comm Academy steering committee says that the annual event has continued to evolve by presenting keynotes and seminar tracks that engage beginner, intermediate, and advanced users in technologies, served agency support, volunteer management, self-preparedness, and how volunteer and professional communications are used, adapted and improved. The leadership has reviewed how it can preserve the direction and focus of the event while restricted by the pandemic. The event is always focused on education for communications leaders, volunteers, and professionals. End

Letters: Preparing for an EMP Incident

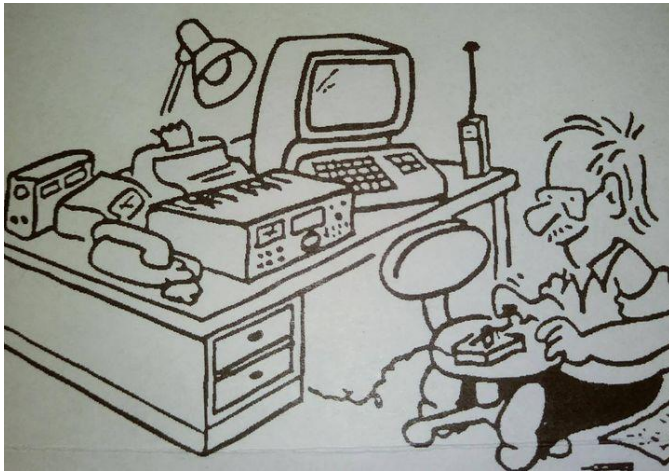
With an increasing number of bad actors with EMP (electromagnetic pulse) devices these days, the disruption of the country's electronic infrastructure is tempting. Many veteran radio amateurs have older V/UHF/HF mobile radios and handhelds; it may be a good idea to store them in a small steel trash can, along with a roll of RG58, mag mount or other kind of antenna, and light line to hoist the antenna into a tree. There is little or no cost involved, and this puts older gear to potential use in an EMP incident.

While not too likely, the military and other government entities do pay attention to the possibility of such an incident that could cripple the internet, power grid, copper pair telephone, and much of the sensitive modern lower voltage circuitry.

Many hams licensed since the end of the cold war may have little or no knowledge of what an EMP blast can do, and how difficult it is to protect against. "When all else fails" means being prepared for the unlikely. -- Doug McCray, K2QWQ, Southampton, South Jersey

[Here is an [info sheet on electromagnetic pulse](#) from the Washington State Department of Health--Office of Radiation Protection.] End.

Ham Humor



Your new ham radio came today and your wife signed for it



Do you still want to swing by the house or just go with me right now?



AM I THE ONLY ONE WONDERING IF THAT WILL



TUNE UP ON 80 METERS?



Southern California Amateurs Rise to Earthquake Emergency

Continued from Page 9

Martin Corcoran, W6GOY, Artesia, W6GWX, South Pasadena, and stations in San Diego, Whittier, Santa Ana, San Clemente and La Jolla handled more than 500 messages for the American Red Cross, American Legion, Los Angeles General Hospital, Salvation Army, County Welfare units and the California Highway Patrol. When W6GOY at Artesia announced, "Boy, that was quite a shake!" the operators at W6BZC, in Los Angeles, waited three seconds before feeling the tremor.

The 1.7- and 4-mc. 'phone men did Herculean work, handling traffic to all sections of the country and broadcasting general information. The 1.7 -mc. men, particularly, were the best organized of those active in any band during the early part of the evening; all those in the earthquake area that had workable stations were on. QRM was a problem in the 75- meter band, but a group of stations including W6CNE, W6EZY, W8DLD, W9FLT, W8WI, W8AOE, W1CWH, W2GO, W2HY and W9MM helped to clear the band for the emergency traffic.

One young schoolboy with a simple self-excited transmitter on 1750-kc. and a brand-new "H" license (we can't determine the rest of the call) hooked a microphone and loop around his tank coil and did some of the best of the early work for the authorities. In emergencies all methods are justified! Although his home and station were close to the beach and terrifying rumors of tidal waves were circulating, he didn't run out and hit for the hills, but stayed at his post. Many other amateurs with comparatively little experience did splendid work, proving that the race is to the willing, not to the swift, in times like these.

The number of stations actually contributing to amateur radio's public service record in this emergency reaches into the hundreds; there were dozens in the primary earthquake area alone. We mention, briefly, but with due regard for the importance of their work, the following: W. A. Adams, W6ANN, Long Beach, who handled hundreds of personal messages, delivering much of his traffic direct on 14 mc. Vernon Keays, W6GRH, Huntington Park, who was on the air by 8:05 p.m. and handled traffic until 10 a.m., hanging onto receiver and transmitter with both hands in involuntary QSK during shocks - as did most of the other stations in the area; WLVR, WLVG, WLVE - both the Army and Navy nets displayed wonderful organization; Ludwig A. Edstrom, W6CIZ, Oakland; who kept continuous watch on 7 mc. for three days, along with A. W. Fuller, W6AF, Oakland; Ed. Stevens, W7BB, Seattle, who took 1500 words of press to an AP direct wire and handled 300 messages in 48 hours' continuous watch. W6CIU, W6HBF, W6FQY, W6FDE, W6LN, W6FYN, W6CMT, W6BTZ, W6EGJ, W6FWJ, W6AEP, W6EPW, W6AXQ, W6FEP, W6CJQ, W6HFP, W6MK, W6DEP and W6AM all deserve praise for splendid work, which we unfortunately do not have space to recount, even had we the details. Nor does this exhaust the list of active stations; it merely includes those concerning whose activities we have received reports. The calls of many other participating stations will be found in the Communications Department sectional reports this issue.

Dwight B. Williams, W6RO, transmitted a graphic "running" description of the 'quake to Ed. Stevens, W7BB, which was used verbatim by the Seattle Daily Times. The Boston Post got much the same story from Williams through George W. Bailey, W1KH, who stayed with him until a major shock forced W6RO off the air.

Forrest P. Wallace, W9CRT, announcer at WMAQ in Chicago, LeRoy Moffett, W9IJ, engineer at WENR, Chicago, and B. G. Swift of NBC's Chicago musical department, with the aid of W9VS of Oak Park, furnished all news of the earthquake that was broadcast over the NBC network, from the reports sent by amateurs in the area. Route Manager Wallace appealed to amateurs over the network to refrain from using their transmitters unless in actual contact with the coast - a new method of amateur control. It was Wallace who, after a QSO with a Los Angeles station the Sunday following the disaster, reported the ardent Californian as ending his description of the 'quake with the words, "But the climate is still fine. Come on out ...!"

Evidence of the prestige of amateur radio in time of emergency is the experience of Edward D. Seeley, W6GXS, on his way from Los Angeles to Long Beach. He was halted not less than six times at police lines where sightseers were turned back, but each time, upon displaying his A.R.R.L. emblem and operator's ticket, he was permitted to pass.

Not only did amateurs handle thousands of messages of reassurance to relatives and friends from survivors, but in a number of instances they secured latest casualty lists from the stricken region and checked these lists for the names of individuals. Newspapers secured information on California visitors and relatives for entire cities in this way.

here is only one really dark spot on the record of public service in this emergency, and that is the attitude of one or two 4-mc. 'phone men in the south and middle west, who were callously selfish in their refusal to stand by and cooperate, and the W6 who deliberately and boastfully QRMed some of the most important traffic handled by W6AOR. But on the other hand, there was the excellent cooperative spirit displayed by many of the 7- and 14-mc. DX men who, while anxious to pile up good scores in the international tests, turned wholeheartedly instead to the relaying of the relief traffic which flooded the traffic lanes of the nation. Here's hoping their scores did not suffer too greatly as a result of their fine public-spiritedness.

Continued on page 16

The California 'earthquake was a marvelous opportunity for amateur radio, and the amateurs of Southern California and the rest of the country responded nobly. Their performance will clinch even more firmly in the mind of the nation the conviction that amateur radio is an essential and indispensable asset to modern civilization.

* W1CBD, Assistant to the Secretary, A.R.R.L.

Posted June 24, 2016

See Pictures below:



Above: Polytechnic High School destroyed showing dome collapsed through entrance.

Below: Ruins of the completely demolished Jefferson Junior High School.



Above: St. Anthony's Roman Catholic Church.

Below: Costly contents of the same building, including importations valued in the thousands, were totally destroyed.



Continued on page 17

**Long Beach 1933 Earthquake
Pictures Continued from Page 17.**



Above: Economy Market where many escaped uninjured
Below: Ideal Laundry, as it appeared just after dozens
of workers had left.



Above: Continental Baking Co. building completely
demolished.
Below: Home Theatre where hundreds escaped death or
injury because of the hour.

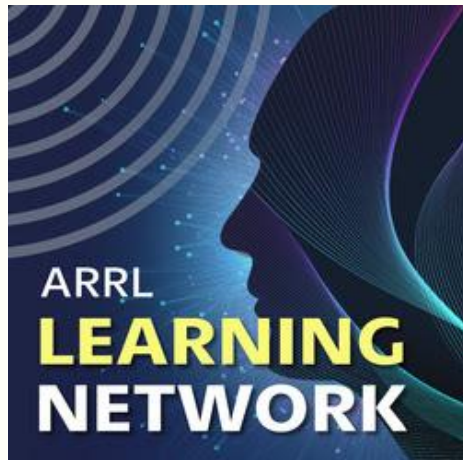
ARRL Learning Network Webinars

Visit the [ARRL Learning Network](#) (a members-only benefit) to register, check on upcoming webinars, and to view previously recorded sessions.

The Art and Science of Operating Ultra-Portable -- Mike Molina, KN6EZE

Tuesday, April 6, 2021 @ 8 PM EDT (0000 UTC on Wednesday, April 7)

Ultra-portable operation is quickly growing in popularity. Whether for SOTA, POTA, backcountry survival, or just spending time in nature, learning how to operate ultra-portable is a fun and rewarding experience. In this presentation, Mike, KN6EZE, covers the basics for new and experienced ham radio operators.



Finding and Fixing RFI -- Paul Cianciolo, W1VLF

Tuesday, April 20, 2021 @ 1 PM EDT (1700 UTC)

RFI (radio frequency interference) -- from natural and manmade sources -- has been a problem for hams and shortwave listeners since the radio hobby began. Things have changed in the last 20 years with the advent of widespread solar power, LED lighting, grow lights, and computers. The technology boom has enhanced our daily lives, but at what price? Learn all about finding and fixing RFI in today's world.

HF Noise Mitigation -- ARRL Northwestern Division Director Mike Ritz, W7VO

Thursday April 22, 2021 @ 3:30 PM EDT (1930 UTC)

An educational seminar to help new and experienced amateurs who are on HF and finding themselves plagued with noise. We'll learn what "noise" is, talk about the various noise sources, and discuss how to mitigate those noises using a variety of techniques.

The [ARRL Learning Network](#) schedule is subject to change. End

For Your Information:

1. The National Institute of Standards and Technology ([NIST](#)) has announced that its [WWVB](#) transmission system is being upgraded to improve signal reliability. Many rely on the 60 kHz WWVB signal to synchronize specially equipped clocks and watches. NIST says the WWVB signal may operate on a single antenna at approximately 30 kW radiated power for several days, with periodic outages. Upgrades are expected to be complete by April 9.
2. Radio amateurs in Europe recently were able to grab and decode [some portions](#) of a recent telemetry transmission from the second stage of the SpaceX Falcon 9 launcher while in orbit. "The data was in a somewhat standard format, but decoding still required some custom tools to extract the bitstream," says presenter Scott Manley. The video includes images not available in the SpaceX public video stream.

Ham Radio Satellite Returns from the Dead

After 7 years of silence, the Delfi-n3Xt satellite is again transmitting a signal. The 3U Delfi-n3Xt nanosat, launched by Delft University of Technology (TU Delft), has not been heard since 2014, and its sponsors were surprised to learn that it was transmitting again. Delfi-n3Xt carries a linear amateur radio transponder. It was the second satellite launched by TU Delft, as part of the Delphi Program, which develops very small satellites.



The first Delphi satellite, Delfi-C3, is still working as well. Now that Delfi-n3Xt is transmitting again, steps are being taken to further its mission. The Delfi-n3Xt project started in 2007, and the satellite was launched in November 2013. The satellite operated successfully for 3 months, achieving mission success. Contact with the satellite was lost in late 2014 after an experiment with the linear transponder.

When functioning properly, the Delfi-n3Xt satellite transmits telemetry on 145.870 MHz and 145.93 MHz, and high-speed data on 2405 MHz. The inverting SSB/CW transponder has an uplink passband of 435.530 - 435.570 MHz LSB and a downlink passband of 145.880 - 145.920 MHz USB. The ham transponder was a last-minute addition to the project.

Continued next column

On February 9, an automatic email notification was received from the satellite's ground station, indicating that a signal from the Delfi-n3Xt had been picked up. Student and ground station operator Nils von Storch said he'd programmed the ground station software so that it would continue to track Delfi-n3Xt and notify him if it ever came back to life. Relevant checks and analysis of telemetry frames prove the satellite is transmitting again. The reason it stopped transmitting has not yet been determined, and the big question now is how it was able to resume operation.

Hypotheses include a bit flip in the software or a short circuit, given the extreme conditions in space.

"Of course, in the past, we have looked for all kinds of explanations, and we also had theories about how the contact could ever come back," nanosatellite program manager Jasper Bouwmeester, PC4JB, said. "But after so long, I hadn't counted on it anymore." Bouwmeester, who has been managing the mission since 2007, expressed confidence that the satellite can still be of use to science.

"But I am sure that we will be able to find solutions," operations manager Stefano Speretta said. "If we don't lose the signal again, there are interesting times ahead." -- *Thanks to AMSAT News Service and Delft University of Technology.* End.



Please access this URL for the latest "Ham Radio Newsline Broadcast".

[Amateur Radio Newsline \(arnewslines.org\)](http://arnewslines.org)

Vintage Radio Pic's



Continued next column

**A Great big thanks goes to:
Don Blanchard
WA7GTU**

Don thank you for the great "How your Radio Works" Presentation at last month's RCARC Club radio meeting. The information and visuals presented a great picture on what makes our radio's work.

Great Presentation

Save the Date
RCARC Swap Meet
coming July 10, 2021 @
9:00 A.M.
Main Street Park in the
Pavilion



Happy Easter Everyone

Amateur Radio Complaints

Have you ever wanted to report a Ham Radio Violation but didn't know where to start? Read the information below to gain some insight on the process.

Amateur radio complaints should be as specific as possible, citing dates, times, and frequencies on which alleged violations occurred. Complaints should also include a name and telephone number where the complainant can be reached for further details, if necessary. Please submit your complaints/concerns regarding amateur radio to the Commission's on-line complaint system. The appropriate form for your complaint can be found here: <https://consumercomplaints.fcc.gov> and click on the radio icon.

Willful or Malicious Interference Complaints

Section 97.101(d) of the Commission's Rules prohibits amateur operators from willfully or maliciously interfering with or causing interference to any radio communication or signal. 47 C.F.R. § 97.101(d).


The [Spectrum Enforcement Division](#), in conjunction with the [Regional and Field Offices](#), is responsible for responding to complaints of willful and/or malicious interference among amateur radio service licensees. End.

A Little Humor

My dad loves to boast about how he can get Mexico on his ham radio set up.

That's nothing I'd say, I can open my window and get Chili.

Something to think about



THE LAW OF THE GARBAGE TRUCK

One day I hopped in a taxi and we took off for the airport. We were driving in the right lane when suddenly a black car jumped out of the parking space right in front of us. My taxi driver slammed on his breaks, skidded and missed the other car by just inches!

The driver of the other car whipped his head around and started yelling at us. My taxi driver just smiled and waved at the guy. And I mean, he was really friendly. So I asked, "Why did you just do that? This guy almost ruined your car and sent us to the hospital!" This is when my taxi driver taught me what I now call, "*The Law of the Garbage Truck*".

He explained that many people are like garbage trucks. They run around full of garbage, full of frustrations, full of anger, and full of disappointments. As their garbage piles up, they need a place to dump it and sometimes they'll dump it on you.

Don't take it personally, just smile, wave, wish them well and move on. Don't take their garbage and spread it to other people at work, home, or on the streets.

Clarification of FCC \$35 Fee Collection Start Date

Contrary to what you may have heard or read, the collection of application fees for the amateur radio service and certain other services will NOT begin on April 19, 2021.

Although April 19, 2021 is the date the rules in the FCC Report and Order adopted last December generally take effect – i.e., one month after the R&O was published in the March 19, 2021 Federal Register – certain parts of those rules, including collection of the application fees for the amateur radio service, will NOT begin on that date.

Continued next column

The effective date for new amateur radio fees has not yet been established. The FCC explicitly states in the published Notice that the fees will not take effect until:

- * the requisite notice has been provided to Congress; AND
- * the FCC's information technology systems and internal procedures have been updated; AND
- * the Commission publishes [FUTURE] notice(s) in the Federal Register announcing the effective date of such rules.

The League's counsel for FCC matters estimates that the effective start date for collecting the fees will be sometime this summer, but regardless of the exact timing we will have advance notice. Stay tuned for further developments on this.

Keep in mind that one can only renew their amateur license within 90 days in advance of the expiration date. If you, or a club station license you are trustee for, are within that 90-day window now, I'd renew as soon as possible to avoid the new fee.

If you are thinking of switching to a vanity call sign, I'd also seriously suggest you apply for that special call sign sooner rather than later. (Of course, if you are an Extra class seeking a new shorter 1X2 or 2X1 call sign, competition for those calls in the future MIGHT be a bit less due to the new fees! We'll see...)

Tyler Griffiths
N7UWX
Utah State ARES Section Emergency Coordinator

Cedar City, Senior Center reopens and shows off their New Remodel Expansion.

Construction on the Iron County Senior Center expansion is complete.

Iron County Commissioner Paul Cozzens told Cedar City News that the \$800,000 project was paid for using excess federal CARES Act grant funds that the county had left over after all of its other 2020 allocations had been made.

Cozzens said the expansion will add approximately 5,000 square feet to effectively double the usable space of the center, which he said has been “bulging at the seams.”

On Saturday March 20, 2021 at 11:00 A.M. Senior Center personnel cut the ribbon which allowed attendees of the Grand Re-opening to walk down the hallway leading to the new expansion.

Please see pictures below:



Ribbon Cutting Ceremony



New Main Large Room



View of main room looking toward hallway. Note stairs to basement right side of picture.



Hallway leading towards the front door and existing Center rooms. Note Elevator on right.

Continued on page 24

Additional, Cedar City Senior Center Expansion Pictures. Continued from page 23.



New Kitchen Area with pass through Window.



Iron County Emergency Comm. Operation Trailer Setup Operations Training Video.



A new video explaining the setup of the Iron County Emergency Operations Com. Trailer is now available for your viewing. To view this training video access the RCARC Web page at www.rcarc.info. Select training from the menu. Locate and play the video.

RCARC member Ron Shelley (K7HDX) created this video. **Thank you, Ron, for this detailed training video a job well done.**

The Endurance of CW in Amateur Radio

17 19 March 2021 | by Richard AA4OO

CW Spans a Century

I've enjoyed using my "new" [GRC-9](#) radio for making CW and AM contacts over the past month. During that time, I've also discovered <https://worldradiohistory.com/Archive-Radio-News/> which has magazine articles about radio dating back to 1919. Reading about amateur operators building and using equipment at the time where CW (continuous wave) was beginning to replace spark-gap operation in wireless communication made me consider just how enduring the ability to communicate using CW and AM have been.

Prior to the introduction of continuous wave transmitters and receivers, the detector used for spark gap communication would have made it difficult to hear a CW transmission (lacking a BFO). So, even though wireless transmission and reception of International Morse Code dates back earlier than 1919; employing CW (continuous wave) to send Morse Code seems to have begun its popularity around that time. AM (amplitude modulation) phone mode was also in use at the time, and grew in popularity during the 40's and 50's until more efficient voice modes overtook it in popularity for voice communication.

Continued on page 25

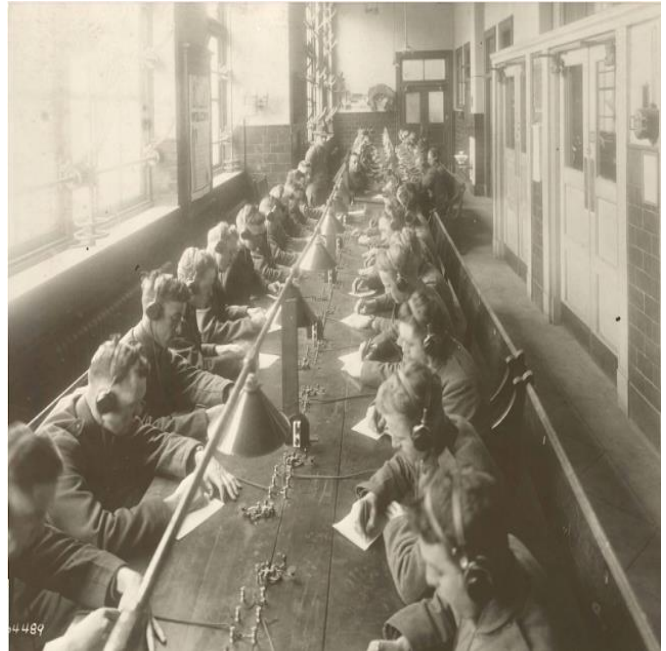
The Endurance of CW in Amateur Radio - Continued.

My GRC-9 was designed near the end of WW2 (circa 1945), and was in continuous production for various armed forces around the world until around 1974 (3 decades is a long production run). My particular unit has a receiver manufactured by Telefunken in 1955 and a Lewyt manufactured transmitter from 1966. I have made CW and AM QSOs with other amateur radio operators whose equipment ranged from home-brew xmtr/rcvrs, Drake and Collins radios as well as shiny new Icom 7300 and Flex radio systems.

A modern amateur radio (typically a HF model) can be used to communicate with radios built 100 years in the past. The same might be said for AM phone, but that mode has become a niche for a much smaller set of enthusiasts.

There are lots of new and exciting modes of communication in amateur radio. Many are pushing the boundaries of weak signal reception, or alternatively allow for high transfer rates of data. But it is somehow comforting to me to consider that amateur radio hobbyists have kept one mode in particular, CW, popular and in continuous use for over 100 years using equipment that remains compatible to communicate with one another. I wonder if that will be the case in another century?

Continued next column



Radio Telegrapher School for Enlisted specialists 1921

That's all for now, so lower your power and raise your expectations

Richard, AA4OO

Amateur Radio Gets a Partial Reprieve on 3.5 GHz

Pending future FCC action, amateur radio secondary use of the 3.3 - 3.45 GHz band segment may continue indefinitely. The FCC, as part of a lengthy Second Report and Order (R&O) for commercial licensing of 3.45 - 3.55 GHz adopted on March 17, agreed with ARRL that continued access by amateur radio to 3.3 - 3.45 GHz should be allowed until consideration of the 3.1 - 3.45 GHz spectrum in a later proceeding.

The FCC action in WT Docket 19-348 represents a partial "and temporary" reprieve from the FCC's December 2019 proposal to remove amateur radio from the entire band, and it makes available an additional 50 Megahertz than an FCC proposal last fall to allow amateur temporary use of 3.3 - 3.4 GHz.

Continued on page 26

Amateur Radio Gets a Partial Reprieve on 3.5 GHz.

Continued from Page 25

The Second R&O can be found in PDF format at, <https://docs.fcc.gov/public/attachments/FCC-21-32A1.pdf>.

Amateur secondary operation in the 3.45 - 3.50 GHz band must cease 90 days after public notice that the spectrum auction has closed and licensing has begun. That is expected to happen early in 2022. The FCC announced the opening of 3.45 - 3.55 GHz for auction to commercial 5G interests on March 17.

The FCC stated that "While we adopt our proposal to bifurcate the band, we adjust our proposal and set 3450 MHz as the frequency at which the band will be split." It agreed "with the ARRL's assessment that the guard band is not necessary from a technical standpoint. We also recognize that the nature of amateur equipment realities makes the 50 Megahertz at 3400 - 3450 MHz particularly valuable to amateur operators because it means existing equipment can continue to operate in the band for the time being."

This allows "amateur operations to continue in the lower portion of the band while the FCC and federal government users continue to analyze whether that spectrum can be reallocated for flexible use," the FCC said. The FCC had proposed splitting the band at 3.4 GHz, permitting amateur use in 100 Megahertz of spectrum "while also providing a buffer to protect flexible-use operations at the lower edge of the 3.45 GHz band."

"We therefore allow secondary amateur operations to continue in the 3.4 - 3.45 GHz portion of the band," the FCC said. "We emphasize, however, that amateur licensees remain secondary users, and those that operate on frequencies close to the 3450 MHz band edge must do so with particular caution to avoid causing harmful interference to flexible-use licensees in the 3.45 GHz Service, which hold primary status."

Continued next column

"In light of these considerations, while amateur operations between 3450 MHz and 3500 MHz must cease within 90 days of the public notice announcing the close of the auction for the 3.45 GHz Service, as specified in the Report and Order; amateur operations may continue between 3300 MHz and 3450 MHz while the Commission, NTIA, and the DoD continue to analyze whether that spectrum can be reallocated for commercial wireless use."

"There is no expectation that such operations will be accommodated in future planning for commercial wireless operations in this spectrum, or that amateur operators will receive more than a short period of notice before their operations must cease," the FCC said. End.



May Technician Class Instructor Meeting



There will be a Technician Class Instructor's Meeting on Tuesday, April 6, 2021.

Location:

**Linda Shokrian (KG7PBX) residence at:
2438 W Carmel Canyon Dr.
Cedar City, UT 84720.**

Time:

6:00 pm.

Contact Information:

1-435-867-5914

E-mail: Lgshokrian@gmail.com

The Rainbow Canyons Amateur Radio Club (RCARC)
is Sponsoring an Amateur Radio

Technician Class

Beginner Level for Ham Radio

Dates: Thursdays - May 6, 13, 20, 27 and June 3, 2021
with the test, Thursday June 10, 2021

Time: 6:00 pm - 9:00 pm

Where: Cedar City Senior Center
489 E 200 South, Cedar City, UT 84720

Class Cost: Free

Study Manual: Free Download
Please bring to class

<http://www.ad7fo.com/media/TechLic2018.pdf>

This class will be presented live, in person at Cedar City Senior Center, live on Zoom (connect info will be sent out before first class) and a recording will be available on rcarc.info. You may attend however fits your schedule but must be present in person for testing on June 10th. If you cannot make the 10th, other arrangements can be made.



Contact to register:

Linda Shokrian KG7PBX
435-867-5914 or
email: Lgshokrian@gmail.com

There is a \$15 ARRL Test Fee

And Now for a Musical Interlude



Please access the following URL <https://youtu.be/O3huHBJwopE> and watch RCARC Club member Isaiah Arnold (KI7SXJ) play the Hungarian rhapsody #6 by Franz Ligt.

Volunteer Examiner Coordinators (NCVEC News.

SB QST ARL ARLB009
NCVEC Question Pool Committee Seeks Input for Updated Technician Question Pool

The National Conference of Volunteer Examiner Coordinators (NCVEC - <http://www.ncvec.org/>) Question Pool Committee (QPC - <http://www.ncvec.org/page.php?id=333>) is requesting input from the amateur radio community on new or modified questions for the 2022 - 2026 FCC Element 2 Technician Pool, which goes into effect on July 1, 2022. This may include suggestions for new questions, changes to current examination topic areas, or changes to existing questions in the current Technician Question Pool.

Continued next column

The QPC offered guidelines that said it's seeking input that focuses on topics that enhance public interest, understanding, and use of amateur radio, or focus on STEM hands-on learning and education, as well as questions on new technology, digital modes, station setup and operation, antennas, and emergency and non-emergency operation.

To submit suggested questions for QPC review, the committee asks that questions have no more than two 70-character lines, including spaces. Distractors should be no more than 70-character lines long, and shorter if possible. Each multiple-choice question must be accompanied by four possible distractors and only one correct answer. The answer choices may be in any order, but the correct answer must be indicated by the letters A, B, C, or D at the beginning of the question. Those submitting suggestions should provide the resource information that supports the correct answer or the FCC Part 97 rule.

The QPC will accept question comments, revisions, and submissions from the amateur radio community via email through June 30, 2021. This email address is a bulk forwarding mailbox, so no acknowledgement will be sent by return email. The NCVEC QPC will take all comments into consideration as it updates the Technician Question Pool for 2022 - 2026.

The email address is, QPCinput@ncvec.org.

