

The *Microvolt*

December 2020



Building a First HF Station



Prologue

Publication: *The Microvolt* (USPS 075-430) is the official publication of the Utah Amateur Radio Club, Incorporated, 632 S. University Street, Salt Lake City, UT 84102-3213. It is published monthly except August. Subscription is included with club membership at \$20 per year. Single copy price is \$1.50. Periodicals postage paid at Salt Lake City, Utah. Postmaster: send address corrections to *The Microvolt*, c/o Tom Kamlowsky, 4137 Clover Lane, Salt Lake City, UT, 84124-2711.

Deadline for submissions is the 24th of each month prior to publication. Submissions by email are preferred (k7hfv@arrl.net), but other means including diskettes and typewritten submissions can be mailed directly to: Gordon Smith, 632 University St., Salt Lake City, UT 84102-3213. Reprints are allowed with proper credits to *The Microvolt*, UARC, and authors. Changes in mailing address should be communicated to the Club Secretary: Tom Kamlowsky, 4137 Clover Lane, Salt Lake City, UT, 84124-2711.

Club: The Utah Amateur Radio Club was organized under its present name in 1927, although its beginnings may date back as early as 1909. In 1928, it became affiliated with the American Radio Relay League (club #1602) and is a non-profit organization under the laws of Utah. It holds a club station license with the call W7SP, a memorial call for Leonard (Zim) Zimmerman, an amateur radio pioneer in the Salt Lake City area.

Meetings: The club meets each month except July and August. The meetings are held on the second Thursday of the month at 7:30 PM in the University of Utah's Warnock Engineering Building, generally in room 1230 or 2230, sometimes in 2250 or 105.

Membership: Club membership is open to anyone interested in amateur radio; a current license is not required. Dues are \$20 per year, including a *Microvolt* subscription. *The Microvolt* and membership cannot be separated. Those living at the same address as a member who has paid \$20 may obtain a membership without a *Microvolt* subscription for \$12. Send dues to the Club Secretary: Tom Kamlowsky, WA7ZRG, 4137 Clover Lane, Salt Lake City, UT 84124-2711. Let the Secretary know if you prefer the electronic edition of *The Microvolt* instead of the printed version.

Contributions: Monetary contributions are gladly accepted. Send directly to the Club Treasurer: Chuck Johnson, 1612 W. 4915 S. Taylorsville, UT 84123-4244. For in-kind contributions, please contact any board member to make appropriate arrangements.

Repeaters: UARC maintains the 146.62- and 146.76- repeaters. The repeaters are administered by the UARC Repeater Committee. Comments and questions may be directed to any Committee member. The Lake Mountain repeater (146.76-) is IRLP node 3352. Instructions for IRLP use are on the club website.

Ham Hot-Line: The Utah Amateur Radio Club (UARC) has a Ham Hotline, 583-3002. Information regarding Amateur Radio can be obtained, including club, testing, meeting, and membership information. If no one answers leave your name, telephone number and a short message on the answering machine, and your call will be returned.

UARC 2020 Board

President: Morris Farmer, AD7SR	801 278-4966
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Historian: Ron Speirs, K7RLS	801 904-3587
Field Day Chair: (To be determined)	
License Trustee: Brett Sutherland, N7KG	801 298-5399
Repeater Engineer: Clint Turner, KA7OEI	801 566-4497
Autopatch Engineer: Gordon Smith, K7HFV	801 582-2438

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IRLP Information

For information on using the club's IRLP node on the 146.76 repeater, check <http://www.utaharc.org/irlp>.

For late breaking news listen to the UARC Information Net Sundays at 21:00 on 146.62 or set your browser to: <http://user.xmission.com/~uarc/announce.html>

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The Microvolt

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Latest News

December (on-line) Meeting: *Ham Radio and DX History*

Ron Wilcox, KF7ZN, will be presenting our December program on DX and how it has been a part of amateur radio almost since the very beginning of the hobby's existence. (DX is a shortcut for "distance" and for HF operation currently means working foreign countries. At other times, shorter distances were difficult and might have qualified as "DX.")

Ron is a DXer himself and is a member of the Board of Directors for the Utah DX Association. He writes:

This presentation is a fun and non-technical look back at the beginnings of ham radio and how DXing was a part of that. We will start in the late 1800's, and end in the 1960's. We will touch on the influence of the military, government, clubs, etc., including the friendly but strong competition between England and the U.S. for the first transatlantic contact. Five important figures in this history are highlighted. Much of this is from a humorous and personal perspective of the individuals involved.

Ron tells us that he is a "California boy" having grown up in Solvang and Hollister, leaving the state when he graduated from San Benito High School. He has degrees from Boise State University, Weber State University, and BYU-Idaho.

He currently lives in Clinton and is a particular fan of Elecraft products. He is active as an instructor and examiner. He is currently a Nurse Case

Manager with Intermountain Healthcare/Select Health (RN BSN). Check his QRZ listing for further details.

The meeting will be on Thursday, December 10, and will, again, be an on-line meeting. It can be accessed (along with several past meeting programs) by going to:

<https://www.youtube.com/c/UtahAmateurRadioClub>.

The meeting will start at the usual 7:30 P.M.. It should be possible to connect to it and make sure everything is working any time after 7:00.

Except for July and August, UARC meetings are held on the second Thursday of each month at 7:30 P.M.

Our Cover

Our cover this month is from the November program. UARC President, Morris Farmer, AD7SR, gave a presentation on how to build your very first HF station. He covered the items needed including everything from transceivers to screwdrivers. That included a look at a variety of coax connector adaptors shown.

Nominations Sought

We are at the time of year when we need to select UARC officers for 2021. Would you be interested in taking over the responsibilities for one of the offices or know someone else who is capable of doing a good job? If so, we would like to know about it well before the December UARC meeting so it can be presented to the full club. Get in touch with any of

the officers and let them know by Thursday, December 3. (See contact information on page 2.) The slate of officers picked by the current Board of Directors was presented at the November meeting and is simply the same people that served in 2020. We hope that this has given everyone time to think about their choices of officers for the coming year.

Member of the Year Award

Our UARC President, Morris Farmer, AD7SR, has suggested the creation of a “Member of the Year” award, to be given to a UARC member who has made significant contributions to the hobby and/or the community as suggested in the “Basis and Purpose” section of the FCC rules.

For anyone who has not recently read the Amateur Radio rules, here is what the FCC considers the “Basis and Purpose” of our hobby (Section 97.1).

(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.

(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.

(c) Encouragement and improvement of the amateur service through rules which provide for advancing skills in both the communication and technical phases of the art.

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

(e) Continuation and extension of the amateur's unique ability to enhance international goodwill.

So far there has been only a single nomination. Try to think of folks who have done well in accomplishing these objectives and therefore influenced the FCC to continue to give us frequencies.

ARRL Files Comments Opposing FCC-Proposed Fees

The American Radio Relay League (ARRL) has filed comments with the FCC strongly urging the Commission to exempt amateur radio from its recent proposal establishing a fee schedule for various licensed radio services including amateur radio.

The original Notice of Proposed Rulemaking (NPRM) is identified as MD 20-270 and proposed a \$50 fee for processing most types of amateur radio license applications. It was the result of a bill passed by Congress directing the FCC to adopt a fee schedule to recover their costs. All interested parties can file comments on the proposal via the FCC's website.

ARRL's arguments included the fact that amateur radio has been excluded from application fees in the past, and was not mentioned in the bill. There seemed to be no reason for the amateur exemption to change.

It went on to point out that the amateur service is all volunteer and “largely self-governing, with examination preparation, administration, and grading handled by volunteers who submit licensing paperwork to the FCC.”

It is pointed out that recently, the amateurs have taken over the job of monitoring the bands for rules violations, relieving the Commission of significant time-consuming aspects of enforcement.

Another point made is that “Amateur radio's role in providing emergency and disaster communication, education, and other volunteer services also justifies exempting radio amateurs from FCC application fees.”

Amateur Radio's motivating of young people to learn about Science, Technology, Engineering, and Mathematics (STEM) is also mentioned.

Orem Classes for Amateur Radio Licensing

The 2021 Schedule for the Orem Ham Radio Courses follows. Each course is free-of-charge, and will be held only on Zoom. If circumstances eventually allow for an in-person format, we'll update all registered attendees of this and other changes. We'll make the saved presentation available online the morning after each class.

To register, email Noji Ratzlaff at <mailto:nojiratz@hotmail.com>, and please include your name, your cell number, your town of residence, and your email address (if you're emailing in behalf of another). Our limited account will allow us to handle up to 60 attendees per course, which should accommodate most who want to participate. *No pre-requisites required to attend any course*; in other words, you can register for the Extra course, even if you have no license at all, but need a good sleeping aid, for example.

Technician : Four Tuesdays: Jan 19, Jan 26, Feb 2, Feb 9 : 6:30 to 8:30 PM MST

General : Four Tuesdays: Mar 23, Mar 30, Apr 6, Apr 13 : 6:30 to 8:30 PM MDT

Technician : Four Tuesdays: May 18, May 25, Jun 1, Jun 8 : 6:30 to 8:30 PM MDT

Extra : Five Tuesdays: Jul 13, Jul 20, Jul 27, Aug 3, Aug 10 : 6:30 to 9:30 PM MDT

Technician : Four Tuesdays: Sep 21, Sep 28, Oct 5, Oct 12 : 6:30 to 8:30 PM MDT

These are homework courses; you'll be expected to complete an assignment (and email me the results) by the start of every class period, even the first one. Then again, these courses will be casual and fun for those who remain awake.

Please contact Noji with any questions (registration, course materials, missed classes, what-ifs, etc.) about the courses.

FEMA Seeking Reserve Telecommunications Operators

From ARRL News

The Federal Emergency Management Agency (FEMA) is seeking telecommunications operator reservists to assist in emergency recovery efforts on an intermittent, on-call basis. The deadline to apply is December 8, but FEMA will not take any applications beyond the first 200, which may come sooner than that.

These FEMA reservist positions seem well suited to radio amateurs. Duties include sending, receiving, and distributing HF radio messages between first responders using the phonetic alphabet, Morse code, call signs, continuous wave, and proper frequencies based on network requirements, as well as setting up, establishing, and maintaining an HF radio site in an austere

environment and performing site analysis to determine an optimal location.

Among other requirements, candidates should have an understanding of radio wave propagation for day, night, and transitional period frequency use, and be able to maintain station message logs and compile communication reports.

The Reservist Program is an appointment type granted under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. See the position description:

<https://www.usajobs.gov/GetJob/ViewDetails/585313700>) on the USA Jobs website for complete information.

Our Relay Rescue of Tuesday, 8 September 2020

By Carol B. Quist, KE7HDA (all but our names have been changed)

My husband, Bill, and I begin and end each day with mutual prayers of thanks. Tuesday, 8 September, we'd prayed, dressed, and listened to weather reports about fierce winds which had whooped west across the Wasatch Mountains and down over northern Utah. We carry our transceivers in order to talk to each other while we're in different areas, inside and out. Bill is KE7HEG; I'm KE7HDA. We had taken classes, paid license fees, and passed tests, to become Technician class operators. Later, Bill passed the General test. I saluted him.

Earlier, about 6:45 near sunrise, we'd opened our curtains. Then, wearing his reflective multicolor blinking-light vest, Bill walked outside our four-floor retirement complex in Salt Lake County and around the area. He's just returned to our apartment, propped our hall door open, sat down, and reported no uprooted trees, no crushed buildings, and no semi-trucks leaning over lawns. Then, all lights went out. We thought we heard Care Coach Lea descending, as usual, the narrow inside stairway east of us. She paused at our door as we called to her. Grabbing a flashlight, Bill gave it to Lea to help her climb all darkened stairs to her office. Without electricity, elevators don't work.

Now in walking shoes and carrying my transceiver, I followed Bill from our apartment to the hall where fire doors had shut ahead of us. Bill held a door for us to exit and walk east toward the entry. Two care-givers had already entered the main door and with their electronic scan keys had also passed through vestibule doors and toward the sign-in table. The daily newspapers rested on the south sofa in the vestibule.

Without electricity, the outside main door had slammed shut. Bill pushed his way east out into the vestibule's narrow south door and then pushed that newspaper-laden sofa to prop open the same door. My job was to sit there beside the slammed main door and wave and holler to all employees and care-givers to walk north toward the kitchen area. Opposite the northeast end of the main dining room is a small dining room. Between those two dining areas is an east-facing, fire exit door with inside handles. Bill stood there to push open those doors to admit employees and care-givers. By transceiver I would report to Bill which person, such as general manager Len, had just waved and passed me. Bill would confirm via transceiver when he'd just admitted which person—plus small wind-blown debris.

Then, maintenance manager, Luke, arrived. Soon, without anyone having to go buy a generator and fuel, electricity revived. With power restored, Bill and Len began hauling in the dozen or so flags and poles which had been erected for Labor Day, the day before. They'd been twisted in every direction and would be stored until reposting on the coming Friday, the anniversary of the 9/11 Terrorist Attack Day in New York and Pennsylvania areas.

Soon in our complex came the announcement that only cold foods/drinks would (or *could*) be served for breakfast; and, fortunately, no employees would have to haul food trays up any stairs. Of course, residents who'd planned to prepare their own breakfast could now use their electric appliances. But too much time had passed for kitchen-cooked sausage patties to be reheated plus servers still being able to deliver on-time meals to apartments. So after delivering those mentioned

newspapers to main floor subscribers, I returned to our apartment and searched our refrigerator. I found meat sticks, milk-ready granola, peeled orange segments, yogurt, sliced bread, jam and hard-boiled eggs. Soon milk, tomato juice, butter, and packaged raisin bran cereal arrived on the food cart.

We later learned that our Bountiful kin had seen snowflakes on their hillside yard and valley office areas. Clearly our SLC area had received a weather squeeze, not a slam, as had other areas. Some northern Utah areas still lacked power days later. Imagine how many blessings we listed in our evening prayers — besides Bill's flashlight return.

We also recharged our transceivers.

HF Propagation May Be Improving

On the November 6 propagation bulletin from W1AW, the ARRL's station in Connecticut, it was observed that on November 4, the solar flux reached a value of 88.1, the highest it had been since October 14, 2016, almost four years earlier. Higher solar flux results in shorter skip on the lower bands (e.g. 40 and 80 meters), and higher bands (10 through 20 meters) being open longer each day. At the same time a new sunspot group (AR2781) appeared and was the largest seen in the new solar cycle, cycle 25.

The number of sunspots rises and falls in an approximately 11-year cycle. Sunspots from alternate cycles show opposite magnetic poles, so during the transition from one cycle to the next, there is a mixture of old-cycle and new-cycle spots. The increase of sunspot counts in the new cycle indicates that we may be beginning several years of increasing sunspot counts and solar flux which generally means better HF propagation, particularly on the higher bands.

On November 13, Tad Cook, K7RA, the author of the bulletins, reported:

“The last time we experienced a day with no sunspots was October 13. Prior to that, September 26 through October 8, September 24, and August 21 through September 22 had *no* sunspots. Cycle 25 is clearly underway and going strong.”

More apparently good news came from the November 20 bulletin:

“This bulletin has mentioned the paper by McIntosh, et. al., *Overlapping Magnetic Activity Cycles and the Sunspot Number: Predicting Sunspot Cycle 25 Amplitude.*”

“My favorite passage: ‘Our method predicts that SC25 could be among the strongest sunspot cycles ever observed, and that it will almost certainly be stronger than present SC24 (sunspot number of 116) and most likely stronger than the previous SC23 (sunspot number of 180).’ This is in stark contrast to the consensus of the SC25PP, sunspot number maximum between 95 and 130, i.e., similar to that of SC24.”

The full paper can be found at :
<https://arxiv.org/pdf/2006.15263.pdf>

SC25PP is the Solar Cycle 25 Prediction Panel, which met in September 2020.

The most active cycle ever recorded was Cycle 19 which peaked in 1958. Many hams (including your editor) got licensed and on the air near that time and enjoyed conditions in which the 10-meter band was open across the country every day during the winter months. Six meters was frequently open. Those hams may have expected those conditions to be the norm. Sadly, of course, they were not. Now, at least some of the experts are now suggesting that cycle 25, now beginning, may equal or even exceed that of the famous 19.

Member of the Month

Jonathan Morrison, KI7VCD

By Linda Reeder, N7HVF

This month we are featuring Jonathan Morrison, KI7VCD. Jonathan got interested in amateur radio when he was in high school. His friend wanted Jonathan to get into amateur radio with him, but Jonathan couldn't afford the equipment at that time, so amateur radio got put on the back burner for awhile. Years later, when Jonathan attended a computer hacker conference, there was a section on ham radio frequencies. This brought back memories and Jonathan knew he wanted to get into amateur radio. When he went home Jonathan found the classes taught by Morris Farmer, AD7SR. He signed up for all of them. In 2218, Jonathan received his Technician, General and Extra class licenses. Jonathan was so impressed that he joined UARC. He enjoys attending UARC activities. He attended Field Day and enjoyed it very much.

The thing that Jonathan likes best about amateur radio is its diversity. The amateur radio operators come from all walks of life. Some of them are engineers, doctors, nurses, teachers and telephone operators. He likes to keep encouraging them.

Jonathan says he is addicted to learning. He can never get enough of it. He is learning the Morse Code. Also, he likes to mentor individuals with all kinds of physical abilities. Several years ago, Jonathan bought a nonprofit bicycle shop organization. People learn different things in helping them learn new skills. Jonathan also likes working with computer students.

Jonathan is a software engineer. He works for Intermountain Security Supply. Jonathan and his wife, Joellyn, have two dogs.

Jonathan is helping Cade Peters rebuild UARC's web site. Jonathan is making sure that everything works. They called me to see if I could get around

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in their web site. It worked out really well. I could read the titles, press enter, and it would open. This is good because I need to get into the members and the UARC Board when I write these articles for *The Microvolt*. They are making sure that we can get the things we need. It will be interesting to see how it all turns out. They are always open for new ideas. They would also like to know what ideas you would like to see on this web site.

Other hobbies that Jonathan enjoys are: bicycling, riding motorcycles, two-wheeling, camping, and river rafting.

Jonathan we wish you all of the best in your endeavors.



Jonathan Morrison, KI7VCD