

July
2020
Newsletter

Big Island Amateur Radio Club

Paul Ducasse,
WH7BR, shares
this photo of
President
William
Polhemus,
NH6ET,
hanging out at
Kulani Cone
and adjusting
antennas for
the 146.760
repeater on our
new tower
home.



Meet on Zoom

Saturday, July 11,
will feature noon
BIARC Board meeting
and membership
program at 2 p.m. --
all on Zoom. Check
BIARC ListServe for
details.

The President's Corner

Crunch Time

You've
probably heard
the change.

The BIARC
repeater on Kulani
Cone has been
removed, and has been replaced



William
Polhemus,
NH6ET

The
view
from
Kulani
Cone

NH6ET
photo



Continued on next page



Sonny Laier, removing the old BIARC antenna from the Spectrum tower.



The new BIARC antennas, mounted in a closely spaced Siamese arrangement.

with one in the neighboring site.

We had to be out of the Spectrum building and off of the tower by June 30. We beat the deadline with four days to spare. We were not in jeopardy of failing to meet the date. We just used the time available to not cut any corners, and to also save some significant expense. We knew there would be performance issues with the new antenna location, and we wanted to squeak every little bit out of the location we were gifted. Beggars can't be choosers; but they can certainly follow best practices.

The first few days the new repeater was in use the performance was absolutely atrocious in the Hilo direction. The initial alignment of the antennas was the problem. The abandoned antenna location that we were able to take over is on the back of the tower in relation to the areas we want to cover. Compounding that issue is that it is also behind a set of large microwave dishes which further create radio shadows. Worst of all, it is immediately adjacent to the KANO and KAHU FM broadcast antenna bay. Those 3kW signals pound right into our antennas with scant few dB of free space loss.

So, a few days later, I climbed the tower and realigned the antennas in an attempt to maximize the potential of our location. I dropped our standoff down the tower about 5 feet. I then swung the standoff around the tower leg about 70 degrees, until the tower leg was directly in line between our antennas and the broadcast array. Lowering the antennas moved a large cross member from being adjacent to our lower antenna, to being between the upper and lower antenna. This increased the isolation between our two antennas, and mitigated that cross member's effect on our antenna's pattern. Additionally, by lowering the antennas, a portion of our lower antenna is below the microwave dishes, while a portion of the top antenna remains above them. It's not ideal to have them partially blocked in this way; but it's certainly better than when one was completely blocked.

The biggest benefit came from rotating the antennas around the tower leg. The isolation from the broadcaster increased, and the radio shadow of one of the microwave dishes was moved from being in the Hilo direction, to be somewhere mauka of Kaumana City. Everything in radio is a tradeoff, though. There is a second microwave dish we have to contend with, and by moving the antennas closer to it we have increased the size of its radio shadow.

However, it is a smaller dish, so by having dropped down to straddle it, more of each antenna's area is exposed. None of the operators beyond that dish have reported any issues. It points directly at my QTH, and I am able to make it in with my portable.

One more change that was made is that we switched the transmit and receive antennas. Contrary to what is typically done, the top antenna is now the transmit, and the receive is the inverted antenna below it. Since we are using collinear antennas with a ground plane, the inverted antenna pattern has a bit of electrical downtilt. And since the antennas now

Continued on next page



The duplexer cans.



Inside the cable entrance.



BIARC repeater.

*Alan
Okinaka,
KH6ATU,
photos*

**Cables enter
equipment hut.**



swing out to the side of a tapered tower leg, they are also slightly physically tilted too. Fortunately that tilt is in the direction we desire. That few degrees of electrical downtilt combined with the few degrees of physical tilt likely somewhat overcome the signal reduction caused by the obstructing microwave dish by pointing the peak gain of the receive antenna below it.

None of this helps with that crunchy sound apparent on the weaker stations' transmissions though. That clicking and popping that some are calling 'popcorn' is the next battle. And, it will be the hardest one we ever solve. In the business, we call it PIM – short for Passive Inter Modulation. There are different types of PIM. Some are the result of the mixing of two or more signals, which gives specific spurs of the mixed signals, called intermodulation products.

That's typically the easy kind to deal with. The other type is akin to spark gap noise, and is essentially impossible to remove with filtering, because it is a broadband noise. It is created very near the antenna or within the antenna system itself. Unfortunately the latter type is what we are combating.

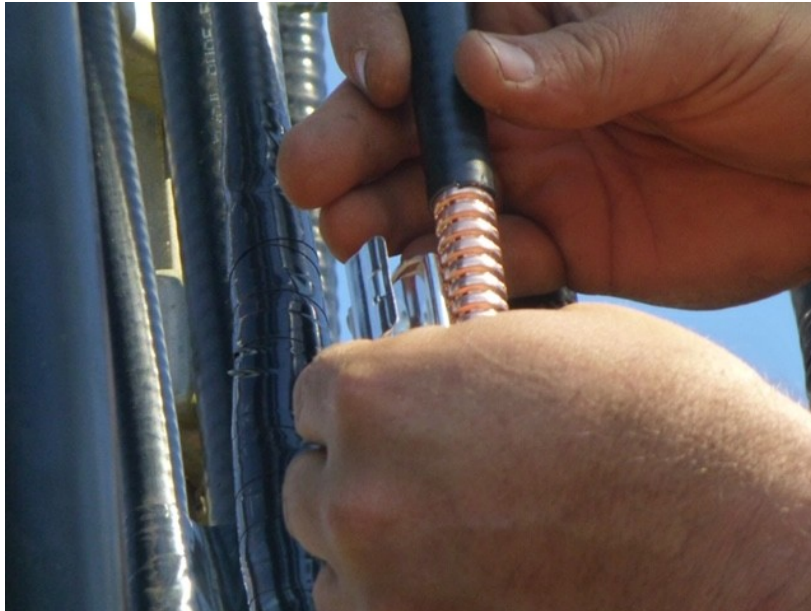
That crunchy popping crackle is a result of the RF energy acting upon the surface of the tower, the antennas, and the hardware that hold it all together. Corrosion and loose hardware are the most likely culprits. And, being just above the summit of Kilauea means that corrosion is a thing on Kulani cone. It's a moist environment to begin with. And when you add volcanic emissions, corrosion becomes impossible to avoid. Nobody makes a 250-foot stainless steel self-supporting tower. So there are perhaps millions of tiny diodes all over the tower. They are formed at the junctions between the metal pieces, and are compounded by the corrosion that occurs there. The high levels of RF, from the broadcaster, from the National Weather Radio transmitter, and in particular, from our own repeater – the closest source to our receive antenna – crawl all over the tower, and make tiny microscopic little arcs across these junctions. Each of those arcs is like a tiny spark gap transmitter. You get a little pop of RF, right up next to our receive antenna. They're so small that my spectrum analyzer can barely sense them from ground level. But being so close to the receive antenna, they come into the repeater's receiver a few dB over the noise floor.

Ordinarily, these tiny little flashes of broadband RF are easily overpowered by the much stronger signal of the stations transmitting into the repeater. However, very weak stations come in at about the same level as the noise, or even just below it. The noise doesn't key the repeater, or hold it open, because we are using a 100Hz tone to activate the repeater. When a weak station keys, the tone is heard, and the repeater opens and keys up. But all the repeater hears beyond that is the noise. That's because the repeater's transmitter has kicked on, further exciting those tiny little spark gap transmitters. The tone may still be heard just enough to keep the repeater open, but the voice is too covered by noise to be intelligible. At an even lower SNR, once the transmitter is active the tone isn't even recognizable, and the repeater drops. As soon as it drops, the noise level drops, and the receiver again recognizes the tone, and re-keys the transmitter, causing the noise level to increase and the tone to again vanish. That cycle can continue, causing the repeater to repeatedly key on and off for the station's entire transmission.

I'm sure some of you have heard the repeater do that. It is one of the key symptoms that tell us that it's the arcing type of PIM that we are dealing with. Being a broadband burst of RF

Continued on next page

means that we can't out. Part of the burst frequency we need to receiver, so it walks filters with the Really the only way eliminate all of those junctions acting as (for lack of a better where the little Those little junctions are the only control, since we antenna to a more address all of the within a few standoff would of work on the tower. would require tower owner, the whose antennas, feed



Grounding.

have mounts that would need to get coated, refurbished or replaced. And the work would require expensive materials several professional tower climbers. Not saying it's something we won't explore. Just saying it's a tall order.

There is relief on the horizon though. In the long term we may be able to trade enough favors to be able to take the receive signal for our repeater from someone else's antenna elsewhere on the tower. I am in the process of whoring myself out to any agency who will consider such arequest. It may take some time. But, I am confident that I'll find someone willing to assist us.

Antenna space and use on a public safety tower is a little bit of politics mixed with a little horse trading. And, I'm willing to grant three wishes to get us to the top of the tower.

If we can physically separate our receive and transmit antennas it will reduce the noise. Our own transmitter will have less of an effect on our received signals. However, there is enough RF at the site to guarantee that some noise will still occur. That is part of the reason that we chose to deploy a public safety grade repeater in place of the Yaesu we had been using. The Yaesu is a fine piece of equipment. But to keep the cost down it lacks filtering. The Quantar we deployed has a very good receive filter – called a preselector – built into to the receiver module. And this has a tightly filtered IF stage. The receiver is therefore more linear and more selective. That means that it has better intercept performance than the mobile radios inside of the Yaesu. The transmitter is cleaner too, giving less spurs to worry about mixing with the other sources on the site. We aren't getting a ton of benefit from that as of yet, because of the very high PIM noise level. But once we can further separate our receive and transmit antennas, the benefits of that filtering and receiver performance will stand out.

The repeater committee will continue to work on the issue. The committee members and several additional volunteers have invested at least a few hundred man hours working at the site. That is in addition to the planning and preparation that went into the move. And we still have yet more work to do. Until we can work out all of the gremlins, I have been experimenting with a cross band repeater to assist in the Hilo area. It is currently set up on a

workbench in my office, and is working well in the Hilo Industrial area, just using my indoor testing antennas. The results have been so encouraging that I am planning to put up an antenna on the roof so that it can cover more of Hilo. I hope to have that done in the next few weeks. It is on the BIARC 70cm frequencies from the old Keaau installation: 442.500MHz with a +5MHz offset, and it requires and provides a 100MHz tone. Though it requires an offset like any other repeater, it's more like having a simplex hotspot. If you can't improve your station, and you are struggling to get in from the Hilo area, give it a try. It won't reach everywhere. But it may be able to help.

So, the club is doing what we can to

Continued on next page

Hawaiian Islands Grid Madness 2020

A VHF/UHF Simplex Event

Sunday, September 20th from 1300 to 1700 HST



Put it on your calendar!

All info at gridmadness.blogspot.com

Grid Madness is a FUN event for all hams in the State of Hawaii. Test your equipment, coverage and operating skills using simplex FM on 2 meters and 70 cm. Talk to as many stations as you can, in as many Grid Squares as you can, using SIMPLEX ONLY. See who you can contact locally or across the water!

New for 2020: Activating two or more Grid Squares from the same location will not be allowed this year. For more info, see [Operating on Grid Boundaries](#).



**Mahalo,
Sonny**

**Alan
Okinaka,
KH6ATU,
photos**

BIARC wouldn't be where we are without Sonny Laier having donated his time and very hard skillful work, reports NH6ET.



improve the situation. I hope you see that. However, there is a lot you can do to help the situation too. Especially those of you with weaker stations. Reports of 'popcorn' over your signal tells you who you are. By improving the performance of your station the crunchy crackle that everyone hears over you will subside. That doesn't necessarily mean you need more power. It more likely means you need a better antenna situation. I have visited specific areas where certain operators are struggling the most, and have confirmed that in most cases it is station performance, not repeater performance, which is the biggest issue. I'd like to thank Richard, KH6FLH, for patiently helping me with dozens of radio checks yesterday as I did that.

I am willing to come and assist any operator who is having difficulties getting into the repeater. I am sure that there are others willing to help as well. We may be able to work some gremlins out of your antenna system. Or, if we find someone in a true dead spot, we can look at solutions like the crossband repeater to get your area back on the air until the someday comes that we get a better receive antenna location on the tower.

In the end, I am still slightly amazed that we were able to achieve what we did.

I'll say it again: There is no other amateur radio club with the resources to do what we have done. All of the right pieces and right people fell into place at just the right time. Without any of them we wouldn't even have a repeater up on Kulani anymore. I am very grateful for what we have, and am appreciative to those who helped make it happen.

We owe a debt of gratitude to one person in particular. Sonny Laier is the professional who donated his time to the club to perform the work on the tower. He is a tower climbing safety trainer, who serves as my right hand man in our professional life. Sonny climbed the tower and performed the entire antenna replacement solo, while I served as his safety climber. Sonny served as my safety climber when I climbed the tower to adjust the antennas. And, Sonny came back a third day and climbed the Spectrum tower for us and removed our old antenna.

We wouldn't be where we are without Sonny having donated his time and very hard skillful work.

He's not an amateur radio operator – yet. I'm still working on him. He doesn't read our newsletter. And he isn't looking for a thank you. However, his contributions have been so great that I still feel compelled to publicly acknowledge his contributions.

**73 and Aloha,
William – NH6ET**

**Paul Ducasse, WH7BR;
William Polhemus, NH6ET;
and volunteer Sonny Laier,
up on Kulani cone, where
work also was done on the
Civil Air Patrol repeater.**



Jim Huntley, WH6FQI, provides this photo of his Hamstick 10 meter dipole thrown up on military masts.

Field Day at WH6FQI QTH

Jim Huntley reports: "This was my Field Day antenna set up in my jungle of a yard.

"I cut down a junk tree that needed to come down anyway and bolted this Hustler 4BTV antenna to the stump and added some ground radials.

"It worked well on 15, 20, and 40 meters. I am off grid all the time, so I qualified for class 1E. I made 116 contacts over 3 bands.

"Propagation was super poor until mid afternoon when 20 meters took off. It was Field Day for me from 6 a.m. until around 1 a.m., when I quit."

Jim adds, "10 meters was totally dead for Field Day."



As ARRL head Roderick noted, Field Day '20 would be unique

In a pep talk and update prior to Field Day, ARRL President Rick Roderick, K5UR, noted that for the first time since it was introduced in 1933, ARRL Field Day would "indeed be significantly different this year."

"Continuing public safety restrictions due to COVID-19 will force many of you to operate from home, while some radio clubs, where permitted, will venture outside in limited gatherings, practicing social distancing.

"By all means, get on the air this weekend and show the world that amateur radio operators remain adaptable to changing situations.

"Although points are awarded, the underlying purpose of Field Day is to demonstrate the versatility and reliability of radio amateurs under simulated emergency conditions. For some of you, especially new licensees, this may be the first time you've established your own home station or portable radio communications capability. Let's use this opportunity to show our friends, families, and community leaders that we are a trained, resourceful, and reliable corps of volunteers, especially when other forms of communications are not available.

"... Field Day is the largest gathering of communicators on the face of the earth. Let's show the world what amateur radio can do!"



KH6DLK Backyard Field Day

Due to the corona virus plague, ARRL encouraged hams to conduct Field Day at home instead of out in the usual groups. I decided to participate in Field Day in my backyard and back patio. The saying is that you do Field Day to practice for an emergency. I do emergencies (typhoon Maysak and Noul in Ulithi) to practice for Field Day. I used my emergency solar power from Ulithi and other parts of the disaster recovery configuration for this Field Day.

I participated in the 1B QRP battery class and ran 5W on FT8 on 15M, 20M, and 40M. 10M didn't cooperate and was dead. The 5W battery class along with FT8 results in a 10X multiplier. I ran my Elecraft KX2 transceiver, Signalink interface, and a Dell laptop. The laptop was run off a small 120W inverter connected to the battery. The KX2 was run directly off of the 60AH battery. The rig and laptop were housed in a custom "radio townhouse" with the radio upstairs, the laptop downstairs, and the batteries in the basement (under the table).

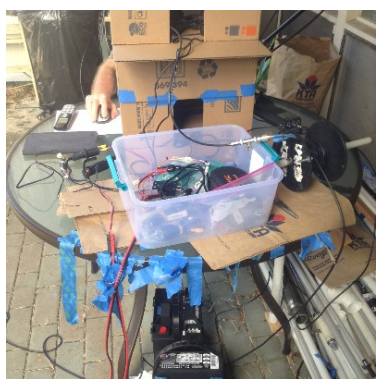
The antennas in the pictures were out in the backyard along with a Field Day sign. The homebrew cobweb handled 20M and 15M. The small Tarheel vertical had a pair of hamstick radials on 40M. It was up at 15 feet. The center whip section was put up Saturday evening and was the equivalent of 25 feet above the feed point.

Despite poor conditions, I made 44 Field Day contacts on the three bands with the contacts spread fairly evenly across the three bands. Finding a clear notch on FT8 was difficult and it appears that many of the 1D (home) stations were probably running a kilowatt into large antenna arrays. A quick test the night before Field Day yielded an answer from a CQ that was in St. Lucia in the Caribbean. That and the 44 contacts show that 5W QRP FT8 is a viable mode.

~John Bush, KH6DLK

Photos by Les Hittner, KOBAD

John Bush, KH6DLK, operated from his Hilo yard. Among the photos, we can see his Field Day sign to inform passers-by; the base of the Tarheel vertical before the whip section was attached; John's radio and laptop in their "townhouse," complete with spare parts in the back; his cobweb and the bottom part of the Tarheel.



June Zoom session focuses on AREDN mesh network for emcomms

The June Zoom get-together drew participation from members near and far, including Pascal, AC7N, and Debbie, AH7DN, Nelson, at left, from their new QTH on the mainland.

The session was coordinated by Vice President Jim Huntley, WH6FQI, and Treasurer Tony Kitchen, WH6DVI, while President William Polhemus, NH6ET, and his band of volunteers took care of important club business at a higher level -- fixing our newly relocated and improved 146.760 Kulani repeater up on the mountain. Thank you, William, et al.

The Zoom program focused on the linking of various stations to create a wide emergency communications mesh.

Discussion touched on possibilities, probabilities, and components already in place.

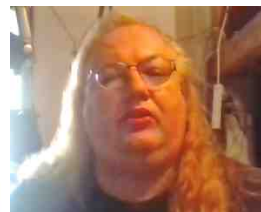
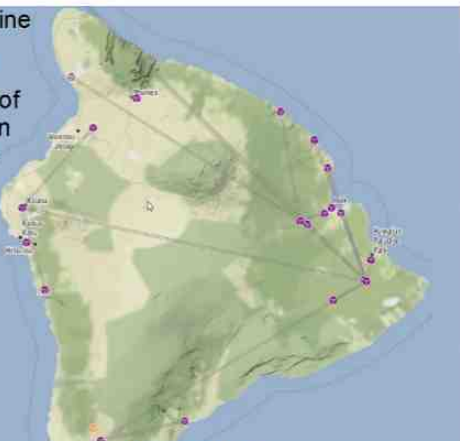
For details on the AREDN Mesh Network, see accompanying graphics.



Debbie, AH7DN, and Pascal Nelson, AC7N, tune in from their new mainland QTH.

Big Island AREDN Stations:

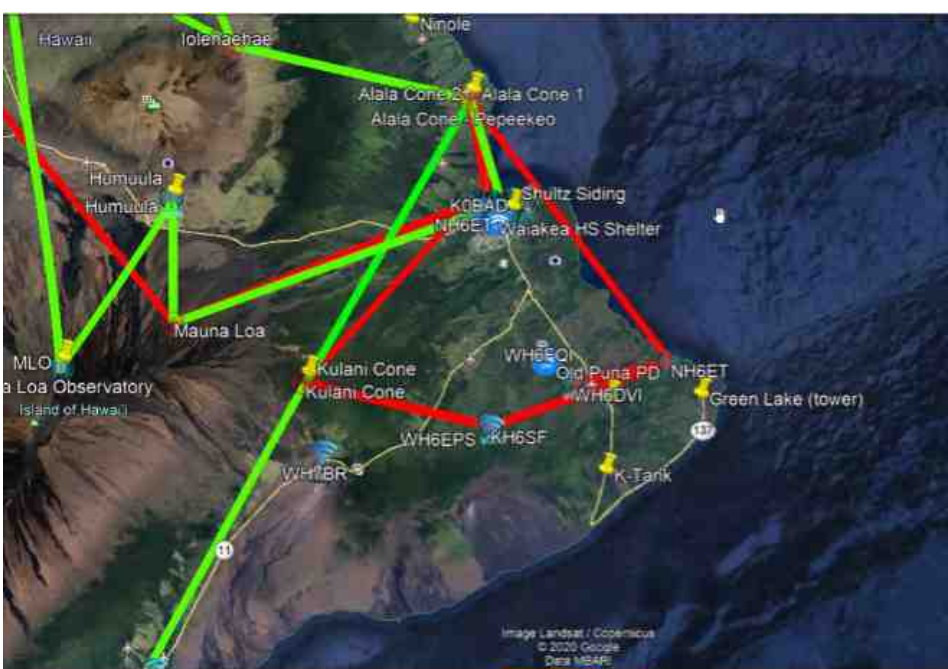
- Stations on-line
- In purple
- Build out of RF links in Progress in Hilo / Puna area.

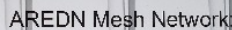


Jim Huntley,
WH6FQI

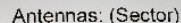


Tony Kitchen,
WH6DVI





- A private data network. Each station controls their own equipment.
- Our links share each others traffic.
- Uses low power, low cost equipment.
- Transmitters run under FCC, Part 97

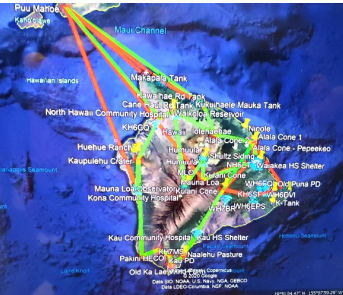


- Antenna: (Example: Cost approx \$74)
 - Mikrotik mANT 19s (MTAS-5G-19D120)
 - Dual-polarization 19dB 120 degree beamwidth antenna
 - Two RP-SMA connectors.
 - It comes with metallic U bolt type mounts.
 - 3DB Beamwidth - azimuth: 120 deg
 - 3DB Beamwidth - elevation: 5 deg



AREDN MESH Map: June 12, 2020

Note: Most stations on this map are connected via internet tunnels. RF links are being set up. Applications deployed include AllStar repeater links, Winlink, PBX. And remote control and management.



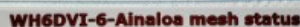
AREDN

WH6DVI-6-Ainaloa

Location: 19.52183 154.987844
WH6DVT HAPAC located in Ainaloa

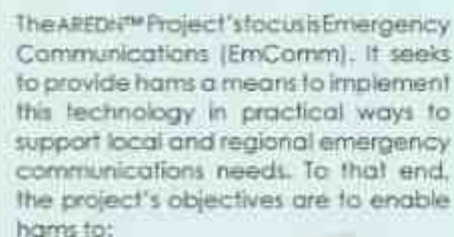
[Help](#)
[Refresh](#)
[Mesh Status](#)
[WiFi Scan](#)
[Setup](#)
[Select a theme](#)

WiFi address	10.174.128.194	Signal/Noise/Ratio	N/A	Charts
LAN address	10.115.6.137	Firmware version	1545-672d4	
WAN address	192.168.2.194	configuration	mesh	
default gateway	192.168.2.1	system time	Sat, Jun 13 2020 13:39:49 MST	
SSID	AREON-10-1	uptime	10:09	
Channel	-2	load average	0.33, 0.40, 0.44	
Bandwidth	10 Mhz	flash	8548 KB	
		free space	179776 KB	
		memory	24736 KB	
OLSR Entries				
		Size	2045	
		Nodes	606	

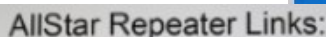


How things fit together with BIARC:

- NH6ET has a complementary vision for backbone linking using a similar intranet network.
- AREDN Traffic must be non-commercial in nature.



- Stand up a working mesh node with minimal expertise and effort
- Configure the mesh network automatically so that advanced network knowledge is not needed
- Use low-cost, reliable commercial equipment
- Define standards for inter-network integration
- Support those in the process of designing and implementing EmComm networks
- Refine the software to make implementation easier, more reliable, and more manageable

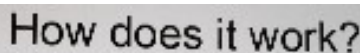


■ What is AREDN?



Antenna: (Dish)

- Antenna: (Example)
 - MikroTik SXTsq-2nD (Approx. \$61)
 - Dual polarization 2GHz antenna
 - 10dBi, -18 dB port to port isolation
 - Beam-Width: H-Plane, E-Plane typ. 60°
 - Dimensions: 140x140x56mm
 - 32dBm / -96dBm (SXT 2: TX/RX at 6Mbit)
 - 29dBm / -80dBm (SXT 2: TX/RX at 54Mbit)
- Point to Point or Point to Multi-point models



- Transmitters typically operate on 900 MHz, 2.4 GHz, 3.3 GHz, and 5.8 GHz.
- Transmitter Power is Typically < 1 Watt.
- Requires line of site with clear Fresnel Zone.
- The network is self healing, if a station goes down it routes around it.

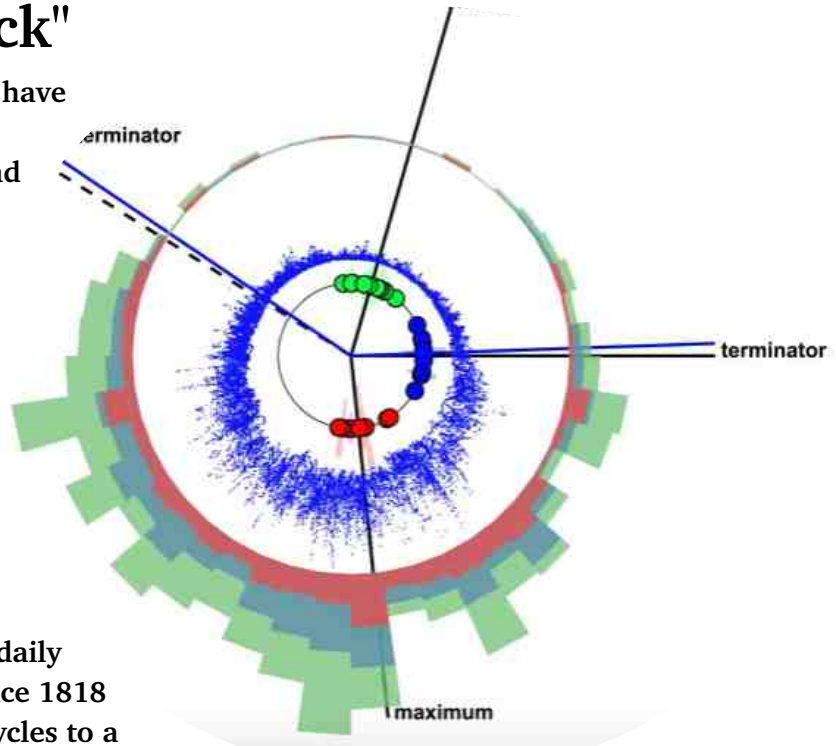
Researchers use 200 years of sunspot observations to create "Sun Clock"

Researchers in the UK and the US have developed a new "sun clock" that quantifies extreme space weather and pinpoints distinct on/off times of high solar activity and space weather.

The sun clock will assist in planning to protect space and ground-based infrastructure that is sensitive to space weather. The study, "Quantifying the solar cycle modulation of extreme space weather," was published in *Geophysical Research Letters*. It explains that the sun clock uses the daily sunspot number record available since 1818 to map solar activity over 18 solar cycles to a standardized 11-year cycle or "clock."

"Extreme space weather events can significantly impact systems such as satellites, communications systems, power distribution, and aviation," a Warwick University news release said, noting that these events are driven by solar activity. "By devising a new, regular 'sun clock', researchers have found that the switch on-and-off of periods of high solar activity is quite sharp."

The researchers' analysis shows that while extreme events can happen at any time, they are much less likely to occur during quiet intervals. The sun clock is aimed at helping scientists to determine more precisely when the risk for solar storms is highest and to plan the impact of space weather on space infrastructure. This gains importance, as Solar Cycle 25 is imminent.



Virtual Tech License Class starts Sept. 1

We will begin a new virtual Technician License Preparation Class via Zoom on September 1.

The classes will be conducted twice a week at 6:30 p.m. over a six-week period.

Please contact Doug Wilson, KH7DQ, at douscelle@aol.com if you or someone you know is interested in signing up for this class.

There is no charge for the class and all materials will be provided.

Bill Ockert, ND0B, wins Fred Fish Memorial Award #10

(Aloha: Needed to brag a tiny bit and thought some of the V/U operators in the club might be interested. Looking forward to seeing all of you in January. ~ 73, de Bill ND0B)

News flash: Bill Ockert, NDØB, of Cathay, ND, (and Keaau, HI) has been awarded the 10th Fred Fish Memorial Award. Bill submitted his last-needed grid, CM93, via Logbook of The World, and his application was approved by the ARRL Awards Branch on June 10.

NDØB has completed a six meter contact, in each of the 488 Maidenhead Grid squares, in the lower 48 United States.

Bill said "I started this quest 10 years ago, it took me 4 years to get to 486, it took me 2 years to work CM79 and it took me 4 more years to work CM93."

Bill is the first recipient of the Fred Fish Memorial Award from the Dakota Division and North Dakota Section. For more information about the Fred Fish Memorial Award, see <http://www.arrl.org/ffma>

Congratulations Bill!

ARRL Dakota Division
Director: Matt Holden, KØBBC
k0bbc@arrl.org Hawaiian Islands

BIARC Board minutes

P1

BIARC Board Meeting

June 13, 2020

A. Meeting called to order at 1205 by Vice President James Huntley.

Role Call: Present (3) Quorum (4)

Board Members:

James Huntley – Vice President
Leslie Hittner, Secretary
Tony Kitchen, Treasurer

Visitor: John, KH6DLK

There being no quorum, Leslie Hittner **moved** and Tony Kitchen **seconded** to delay the meeting until 1930 on Thursday, June 25 on Zoom. Motion **passed** unanimously.

B. Meeting resumed on Thursday, June 25 at 1943 by Vice President James Huntley.

Role Call: Present (4) Quorum (4)

Board Members:

James Huntley – Vice President
Leslie Hittner, Secretary
Tony Kitchen, Treasurer
Paul Ducasse, Custodian

Minutes of last Board meetings: Regular meeting on 05/09/2020

Tony **moved** and Leslie **seconded** that the minutes be approved as published and distributed by email. Motion **passed**.

Treasurer's Report: The treasurer's report was submitted in writing as two reports; an Operating Statement and a Summary Report

The Fund balances for the end of May 2020 are:

Repeater fund	\$ 764.37
Emergency Reserves	\$1,000.00
General Fund	\$1,809.07
Total Funds	\$3,573.47

The club has added two new members and \$98 and change since those reports, which were sent out on June 10.

Leslie **moved** and Paul **seconded** to accept the Treasurer's Report subject to audit. Motion **passed** by a unanimous vote.

C. Committee Reports:

- a. **Digital Systems** (No written report): James noted that much is in a standby state until the voice repeaters are re-configured. In the meantime he is continue to work on the future iGate to be installed at one of the repeater sites in the future. Les asked about the Vara FM

P3

would like to see an ARES representative added to the VOAD committee, thinking that ARES operators could be a big help in providing needed training and knowledge for these organizations. The BIARC Public Service Communications Committee will assist with that effort.

Tony also noted that there has not been significant progress that he is aware of with the DWS MOU.

- f. **Voice Repeaters** (No written report): Work is being done on the new Kulani repeater install. The old system remains to be removed. The new antenna location is on the far side of the tower, so the pattern can be impacted by rotating the antenna mount on the tower leg. Selective use of the upper or lower antennas (Two antennas are mounted on the same tower mount – one pointed upward and one pointed downward) are being tried. Eventually, a duplexer may be used to allow the repeater to function from a single antenna. This will leave the second one for uses as a digital node or iGate as intended. We do not currently have use of the tower-top antenna for receiving. There are other unused microwave dish antennas that can potentially block RF from our system. The committee will be working over the next few weeks to improve the performance from the new tower location, which is about 50 yards from the tower that is being taken down.

D. New Business:

None.

E. Old Business:

- a. **Club T-Shirts:** There has been no progress. This item will remain on the table for now and can be addressed when social distancing requirements have been modified.
- b. **By Laws Amendment Auxiliary Membership Definition:** Les asked for an in-meeting vote on the following email motion, which did not receive sufficient "yes" votes:

In writing the article for the Newsletter, Les discovered that the Constitutional amendment that re-defines membership was incomplete. We had proposed a change to the definition of **Associate Member**. A similar change needs to be made to the definition of a **Full Member**.

Therefore, via email, Les moved that:

ARTICLE I, SECTION 1, Paragraph 1 of the BIARC Constitution be amended

1. Full Members: Members who have Amateur Radio Licenses are designated as Full Members.

Be re-worded:

1. Full Members: Members who have Amateur Radio Licenses and whose amateur station license address is on Hawai'i Island are designated as Full Members.

In addition to this part, which has already been approved:

ARTICLE I, SECTION 1, Paragraph 2 of the BIARC Constitution be amended

2. Associate Members: Members who do not have Amateur Radio Licenses are designated as Associate Members.

Be re-worded:

P2

Winlink systems with respect to anticipated Winlink loading during EMCOMM. Is the increased speed of Vara worth the problems being encountered in setting it up? James noted that its biggest impact may well be on the HF circuits.

Mel Uchida checked into the meeting.

- b. **Education and Outreach** (Written report): Tony discussed the topic of the committee's single zoom meeting – moving the BARC website to a hosting platform that BIARC has control over. The site has been hosted and paid for by Rick Frazier for seven years. He is willing to transfer those domain hosting responsibilities to BIARC.

Tony is BIARC's current Webmaster and he would like to see the club take over those responsibilities. He would also like to shift the website itself to a development platform where it can be more easily managed by several club members without their having to become website development specialists. This would allow Committee Chairs, for instance, to put information on the website that is unique to their committees' responsibilities. This would greatly lighten Tony's load, since it is not the only BIARC responsibility that he has.

This would result in additional costs for the club:

Domain Registration of \$15.16 a year at namecheap.com where it is currently held.
Domain Hosting at hostgater.com at roughly \$2.75 – \$5.00 a month depending on the features desired.

Tony **moved** and Les **seconded** to accept Rick Frazier's offer to transfer control of the **biarc.net** domain to BIARC and also to subscribe to a web hosting service at an estimated \$3.95 per month for an estimated annual budget this first year of \$65. Motion **passed** unanimously.

- c. **Operating Activities** (No report): Tony discussed Chairman Roy's idea of offering prizes for individuals competing in this year's Field Day. Roy suggested \$90 for coffee mugs, FD coolers, and pens. These prizes would be offered only to stations who submit copies of their logs to ARRL on behalf of the Big Island Amateur Radio Club. The Field Day budget is currently \$320. Tony said that he already has three **CW Coins** left over from last year to use as first, second, and third place prizes along with certificates of excellence for the top three scores.

Tony **moved** and James **seconded** that we allocate \$100 for Field Day competitive prizes which will be specified on the website. To qualify, club members must have attributed their points to the Big Island Amateur Radio Club, and sent copies of their logs to both ARRL and the Operating Activities Committee before the ARRL -specified deadline. The motion **passed** by a unanimous vote.

- d. **Program** (No written report): Mel said that Jim Kennedy – a former club member and physics expert – will present at the July Zoom activity on the subject of interpreting ionospheric indices in terms of radio wave propagation. The presentation itself will take about 30 minutes, leaving time for additional questions and answers.
- e. **Public Service Communications** (Written report): In addition to submitting its report, Tony, Chair of the Public Service Communications Committee, discussed the following: Nine organizations are represented on the newly re-organized Big Island VOAD Public Communications Committee. Seven of those organizations have a core of licensed amateur radio operators, although they are nearly all new and inexperienced hams. Kevin Bogan

P4

2. Associate Members: Members who do not have Amateur Radio Licenses or whose Amateur Radio Station License address is not on Hawai'i Island are designated as Associate Members.

Be included in the Constitutional amendment to be voted upon by the membership in November.

While several people voted "yes" by email there was **no second**, so I am assuming that any of the "yes" votes would have seconded the motion (The Board perhaps needs to formalize how such motions/votes should be handled.)

Les called for the question on the email motion and it **passed** with a unanimous vote.

- c. **MOU with the County of Hawai'i Department of Water Supply:** No action taken.
- d. **BIARC Lending Library:** In committee.

- F. **Other Business:** Tony, asked that during the September Club activity meeting, the Programs Committee set aside some time to discuss the ARES SET exercise that will take place in October with a goal of increasing participation of BIARC members using a variety of communications modes. Board members then discussed the ARES SET in more general terms.

Adjourn: There being no further business, James adjourned the meeting at 2036.

Respectfully Submitted,

Leslie D. Hittner

Leslie Hittner, Secretary

Enc: PSC Committee Report
Education and Outreach Committee Report



BIARC Public Service Communication Committee Report

May 10th - June 10th, 2020

Volunteer Organizations Active in Disaster: (VOAD)

Hawaii VOAD is a chapter of National VOAD. In addition the the State VOAD, based in Honolulu, County VOADs are located on Kauai, Maui, and the Big Island. VOAD consists of nonprofits, faith-based and community-based organizations, as well as government and private sector partners that voluntarily provide some form of disaster-related services. The role of Hawaii VOAD is to bring organizations together, enabling them to understand each other and work together before during and after a disaster.

BIARC is a member of Big Island VOAD. The BIVOAD met via Zoom and voted at their May 12 meeting to appoint Tony Kitchen, WH6DVI to chair their communications committee. This committee subsequently met via Zoom on 5/25 and 6/9.

BIVOAD Communication Committee Members:

<u>Member Name</u>	<u>Represented Organization(s)</u>
Kevin Bogan, AHQO	Hawaii State VOAD, Chair of communications working group.
Suzi Bond	KDEN, Exec VOAD Committee
Kenneth Cutting, KH7ZJ	Red Cross in Kea'au
Jyness Jones	Big Island VOAD secretary and The Church of Jesus Christ of Latter-Day Saints
Susan Kim	Governor's Representative
Tony Kitchen, WH6DVI	BI VOAD Communications Committee chair and BIARC Public Service Communications Committee chair.
Lindy Marzo	Church of the Holy Apostles
Rick Mazurowski, WH6GGT	Church of the Holy Apostles in Hilo
Rodney McGee	Lions Club, Kona Chapter
Ken Okimoto, WH6EQG	Honpa Hongwanji Mission of Hawaii

The work of this committee is to assist organizations in developing, coordinating, and exercising EmComm plans. The goal is to coordinate planing between BIVOAD, ARES, BIARC, HC CDA, and other interested partners. This work will include frequency coordination on VHF/UHF (simplex) and coordination of repeater usage for training and during an emergency. We are seeking participation from others affiliated with VOAD organizations as well as amateur radio operators.

Proposed MOU with County Dept. of Water Supply

On May 4th revision 2a of the draft MOU went out to the PSCC and the BIARC President, along with an invitation to comment or propose further changes. NH6ET will seek input from DWS and refer it back to the PSCC as necessary for modification.

ARES Meetings (Via Zoom)

On May 13th, ARRL SEC Clement Jung, KH7HO presented a summary of how the May 30th ARES /

Continued on next page

ARC exercise will be structured. Participants will simulate EmComm Stations located at an ARC hurricane shelter, although they will be operating from their QTH due to the COVID-19 pandemic. Each station will send two messages to ARC, and send a CC: KH6FHI. The messages sent will be an ARC 213 General Message, and an ARC Daily Shelter Report. We are working together with East Hawaii DEC Darrell Asuka, KH6RDO and others to coordinate this exercise.

Update: (6/6/2020)

The exercise was held the morning of Saturday, May 30. The report from KH7HO, acting as the "division clearinghouse" stated that there were a total of 66 registered participants statewide. In Hawaii County it stated that there were 26 participants, with 40 ARC-213 and 39 Daily Shelter reports received.

ARES 2020 SET Exercise: Oct. 3rd

The SET simulates a major disaster event impacting all Hawaiian islands. Amateur Radio will handle simulated traffic for Hawaii served agencies. Each of the four Big Island ARES districts organize their exercise under the direction of their DEC, to fit the scenario published by Hawaii ARES.

All Amateurs are invited to participate and requested to originate messages providing (1) Information about their station status, (2) report of any simulated information about incidents affecting their local area, and (3) simulated requests for assistance. Hawaii SkyWarn, the HealthCom hospital net, County Civil Defense, and state HI-EMA will be invited to participate. Appropriate simulated messages should be addressed to each. This exercise is a great opportunity to pass both tactical and record message traffic in the same exercise. Additional information will be published at <http://Hawaiiares.info>.

Update: (6/7/2020)

The regular monthly ARES meeting on June 10th was moved to Saturday, June 13th. Clem Jung, KH7HO will hold a Zoom meeting to follow up on the May 30th ARES/ARC exercise and also focus on planning for the 2020 SET.

HEARDN Meeting: (Hawaii Emergency Amateur Radio Data Network)

On May 3rd, William Polhemus, NH6ET presented via Zoom his vision of how various groups and stations might cooperate in the the establishment and build out of a Hawaii County and statewide RF digital network. This plan would use commercial equipment as the RF backbone in the 900 MHz and higher bands, to create a resilient network with emergency backup power. Key stations would link it into various AREDN mesh network "islands" operating under FCC part 97 to provide RF data network capability at the community level. Amateur Radio stations throughout Hawaii with emergency backup power are invited to host AREDN mesh stations that would connect into these key stations and build out the mesh network with the intent of providing coverage to as many communities and served organizations as possible.

The digital network may be used to link repeaters maintained by BIARC, the Hawaii/Mainland Allstar network, and others as well as a back haul for DMR, Fusion, and other digital systems. It would carry RF Email as part of a Winlink hybrid network. BIARC partners such as HC CDA, DWS, and other public health and safety groups would be able to use portions of this network to supplement their existing data network under the conditions specified in the various operating agreements. This RF digital infrastructure would also link a SIP based emergency IP phone infrastructure between amateur radio operators and various EmComm involved organizations. Several other potential applications are being discussed. The proposed MOU with DWS is a key factor in enabling the build out of this network.

Time to charge batteries, keep an eye on weather in eastern North Pacific

(June 22, from Kevin, AH6QO, to BigIslandRADIO@groups.io)

This is addressed to the Skywarn Spotters and anyone interested in weather and its power.

Right now there is nothing to worry about. The Central Pacific is relatively quiet ... All of this may change, but the trained Severe Weather Spotters know to be vigilant.

I am using this time to clear debris and unwanted vegetation out, rescreen those screens that need it, check my shutters and plywood are still strong and leisurely run through preparations, including making

sure I have the appropriate paperwork, gear and supplies freshened and ready.

Here is the link for the National Weather Service National Hurricane Center's eastern North Pacific:
<https://www.nhc.noaa.gov/gtwo.php?basin=epac&fdays=2>

Stay Vigilant. Stay Healthy.

As Ron Hashiro would say, "Get Ready Today - Be Ready Tomorrow."

Kevin, AH6QO

Website: <http://www.protopage.com/ah6qodashboard>

Skywarn info: <http://www.protopage.com/ah6qodashboard#Skywarn>

Hawaii Voluntary Organizations Active in Disaster



Richard Darling, AH6G, at annual Hamfest in Waimea a few years ago.

BIARC file photo by
Linda Quarberg,
WH6LQ

67 years a ham!

Congrats to
AH6G

Richard Darling, AH6G, has just marked his first 67 years in amateur radio.

During his almost 7 decades of enjoying the ham hobby, he's been honored with prestigious awards and achieved much in the way of self-fulfillment, teamwork, QSO milestones, community kokua at home and abroad, assistance via emcomms and just plain old good times.

He's traveled and lived around the world and, since a young age, always with radio at hand.



The International Amateur Radio Union

Since 1925, the Federation of National Amateur Radio Societies
Representing the Interests of Two-Way Amateur Radio Communication

(By reader request, an excerpt from: The International Amateur Radio Union Ethics and Operating Procedures for the Radio Amateur)

©John Devoldere, ON4UN, and Mark Demeuleneere, ON4WW

AMATEUR RADIO CODE OF CONDUCT

I. 2.1. Basic principles

Basic principles that should govern our code of conduct on the ham bands are:

- Social feeling, feeling of brotherhood, brotherly spirit: large numbers of us are all playing radio on the same airwaves (our playing field). We are never alone. All other hams are our colleagues, our brothers and sisters, our friends. Act accordingly. Always be considerate.
- Tolerance: not all hams necessarily share your opinions, and your opinions may also not be the best ones. Understand there are other people with different opinions on a given subject. Be tolerant. This world is not for you exclusively.
- Politeness: never use rude language or abusive words on the bands. Such behavior says nothing about the person it is addressed to, but a lot about the person behaving that way. Keep yourself under control at all times.
- Comprehension: Please understand that not everyone is as smart, as professional or as much an expert as you. If you want to do something about it, act positively (how can I help, how can I correct, how can I teach) rather than negatively (cursing, insulting etc.).

Hawaii QSL Bureau is alive and well

Aloha,

Just a short reminder of another volunteer promoting the Amateur Radio Service.

Ned Conklin (KH7JJ) has been at it for almost three years, so I asked him to give us a report on the Hawaii Bureau.

Like so many activities moving to Internet, I would have guessed there would be a steady reduction of paper QSL cards. Especially considering the low point of HF propagation.

Apparently not!

Here is Ned's report:

"The KH6 QSL Bureau is alive and well. Even in these days of wide LOTW acceptance and other forms of eQSLs, many hams still use paper QSLs. We handle incoming cards only – not outgoing. Periodically we receive bundles of Hawaii-bound cards from amateur radio societies all over the world. We sort them and deliver them, either through individual mail accounts, or via participating club meetings, or personal pickups.

In the past three and a half years, the bureau has received about 30,000 cards. About 75% of the cards are consistently from Japan; other large contributors have been Russia, Germany, Netherlands, Finland, Estonia, Italy, and of course the ARRL. Incoming card shipments were somewhat lower in 2018-2019, probably because of wider usage of LOTW, but the increasing popularity of FT8 has brought us back to an average of 800-1000 cards per month.

For delivery, we have about 60-70 active individual mail accounts, and another 30-40 or so stations get cards through club meetings such as EARC and KARC.

The bureau has cards on file for several hundred more Hawaii call signs with individual totals ranging from just a few cards to a hundred or more. We try to contact the owners of the larger backlogs, but are often not successful.

If you think you might have cards at the bureau, please contact me (Ned KH7JJ, e-mail ekc@forth.com). If you do have cards, I can either set up a mail account for you, or – if you don't want the cards -- I can throw them away, but I won't do that without explicit instructions."

BTW, for information on the ARRL QSL bureaus, access this link, <http://www.arrl.org/incoming-qsl-service>



*ARRL Pacific Section
Section Manager: Joseph Speroni, AH0A
ah0a@arrl.org*

Red Cross EmComm Drill Summary

American Red Cross volunteer radio amateurs organized a large-scale nationwide Emergency Communications (EmComm) drill on May 30, 2020. Planning began last November by a handful of Red Cross volunteers. Interest both within Red Cross and the larger radio amateur community grew and by May a thousand hams were registered to participate.

Red Cross has a Memorandum of Understanding with the American Radio Relay League concerning EmComm training and exercises and this drill was organized along those lines. ARRL's Amateur Radio Emergency Service (ARES) provided hundreds of hams to support Red Cross in this simulated nationwide emergency. In all, over a thousand radio amateurs were active in thirty six states, including Hawaii and Alaska, as well as the territory of Puerto Rico.

Additionally, the Salvation Army Team Emergency Radio Network (SATERN), with its strong history of providing EmComm services participated in this joint simulation. SATERN activated in six states.

The Drill was a simulated nationwide power outage and participating hams were role-playing as "shelter stations." (No one was actually at a Red Cross shelter due to the complications of Covid-19.) In future drills actual operation at Red Cross shelters and facilities will be planned.

The drill scenario was that each "shelter station" ham was in an area that had no power, internet or cell phone service and that the Shelter Manager needed to get out a requisition for materiel. The Shelter Manager would give the ham a 6409 requisition form that would then be transmitted digitally, over radio, to a Divisional Clearinghouse. There were ten of these set up around the nation to serve as collection points for 6409's and other Red Cross forms. The Divisional Clearinghouses were assumed to be "high and dry," with power and fully-functional internet. They would be able to collect the forms and convert these into plain-English documents to send to a conventional Red Cross email address and readable by a non-ham.



This event was a booming success. Over six hundred 6409's were sent, along with three hundred ARC 213's and almost a hundred shelter reports and staff assignment forms, demonstrating the ability of amateur radio to process and deliver Red Cross forms in an emergency scenario with no internet, power or cell phone services. Cooperation between ARES and Red Cross was strengthened more than ever. Planning is now beginning for a Fall Drill that will build upon lessons learned in the Spring Drill.

--Comments prepared by Wayne Robertson, K4WK, wayne.robertson@redcross.org, June 22, 2020

Aloha Chapter of 10-10 International

Local hams active on 10-meters encourage amateur radio licensees at all levels to join in the fun.

[More info on the world of Ten-Ten is available on Facebook and at <https://www.ten-ten.org>]

Leslie Hittner

From: "Tony Elias" <TonyEliasHi@hotmail.com>
Date: Thursday, June 25, 2020 12:06
To: "Bob Schneider" <ah6j@arrl.net>; "Mel Uchida" <glenmiao@aol.com>; "Paul Decasse" <ducasse@hawaii.rr.com>; "Jim Huntley" <wh6fqi@gmail.com>; "Les Hittner" <k0bad@arrl.net>; "William Polhemus" <william.polhemus@ieee.org>
Subject: Proposal to accept ownership of BIARC.net from Rick Frazier

I am putting forth the recommendation that we accept the generous offer from Rick Frazier to transfer the biarc.net domain to BIARC. This would involve BIARC covering the annual cost of domain registration, which has been \$15.16. It would also involve paying the website hosting fee.

If we keep the website hosted at the "hostgator.com" service where it is now, the cost would either be \$2.95 per month or \$3.95 per month depending upon which plan we go with. I propose that the Executive Board accept this offer and approve an annual website budget of \$65.

The domain registration must be paid to namecheap.com prior July 11th. I would sign up for an account at hostgator.com as soon as the board approves the budget. Once established I would transfer the content of biarc.net to our new account at Hostgator.com, test it, and then point the biarc.net domain to the BIARC account at Hostgator.

73

Tony Kitchen

WH6DVI

Chair, Public Service Communication Committee
2020 BIARC Treasurer

QSO Today Virtual Ham Expo set for August

QSO Today podcast host Eric Guth, 4Z1UG/WA6IGR, has announced that the first QSO Today Virtual Ham Expo will take place Saturday and Sunday, Aug. 8-9.

Attendance is free to all, registration is open, and there are early bird prizes for registering now.

Built on a live, virtual reality platform used by Fortune 500 companies and major universities, the ARRL-sanctioned hamfest will feature a lineup of well-known speakers.

Guth and his team, including George Zafiropoulos, KJ6VU, have assembled more than 50 of the best ham radio mentors in multiple tracks to address this conference from the virtual Expo's auditorium.

Presenters will include Ward Silver, N0AX, on grounding and bonding; Glenn Johnson, W0GJ, on DXpeditions, and John Portune, W6NBC, on building slot antennas

for antenna-restricted locations.

Demonstrations of new amateur radio gear will be presented, and attendees can speak with exhibitors via video/audio or chat, as well as interact with others online.

"This platform simulates a full convention experience, with an exhibit hall and exhibit booths staffed by live attendants, speaker auditorium, lobby, and lounges," the announcement said.

Guth, an ARRL member, decided to go forward with the virtual event after many in-person ham radio conventions were canceled because of the COVID-19 pandemic.

ARRL will be among the exhibitors filling the virtual exhibit hall.

Attendees will be able to share ideas and network with each other

via the virtual platform.

Following the 48-hour live event, audio/video from presentations and resources published by exhibitors will remain available to registrants on demand for 30 days.



Update on Winlink modes shows steady improvements

Aloha all,

The Winlink Development team published an excellent digital modes comparison study by Thomas Whiteside (N5TW) on their website. It shows steady improvements in performance as software algorithms evolve.

The study was triggered by the release of VARA HF 4.0.1 on June 30.

The addition of digital in our EmComm tool kit makes Amateur Radio more valuable to our served agencies.

Let's pass this information on to

ARRL members and plan to provide education for Amateurs interested in these new modes.

Winlink is a tool for personal communications, health and welfare traffic, and served agencies with varying need of digital formatted messages.

The study is well done and worth reading.

73 de Joe/AH0A
<https://tinyurl.com/ybafdyd>