Jimmy Love, WH6GEM, at left, and Hawaii County employee Bill Gray attack the Kulani communications shed roof during work party trek on Sunday, April 11.

At right, BIARC President William Polhemus, NH6ET, works inside, testing and tweaking.

Kulani comms shed roof:

Before: *and* *after:*

In any real estate transaction, the key factors are "location, location, location." And it's no different when said square footage is on the face of a communications tower.

"Great signal," was the consensus on the BIARC Monday morning net April 12, as clear air and excellent receive-and-transmit conditions prevailed for the first time in a long while.

That Sunday, President William Polhemus, NH6ET, had led a group of volunteers up the mountain to Kulani, where he switched our 146.760 repeater to a temporary, borrowed position on the tower.

And: Voila!

It worked.

The 28 stations who had checked in that Monday were effusive in their gratitude.

To start the ball rolling, net control operator Paul Ducasse, WH7BR, bumped William up to the top of the list for his report on the mission.

William thanked Jimmy Love, WH6GEM, for spearheading the repairs that day to the roof of the Kulani communications shelter as part of our partnership with the Hawaii County Civil Defense Agency. Damaged by a direct lightning strike, the roof had been a leaking mess for some time.

NH6ET reported that "our antenna is in per-

Continued on next page

After on-site observation and testing at Kulani, NH6ET reports BIARC repeater and antenna are in great shape.

From previous page

BIARC crew spends a working Sunday up at Kulani comms complex.

fectly fine condition," although there were some spurs, which he swept away. He tested the repeater, and found all functioning is sound. It's the repeater location that has been bad.

"We have been in a very unusable section of the tower," he explained. Plans are to relocate our repeater to a new permanent spot on the front of the tower. Our assigned location has been on the back of the tower. The new spot will be lower by about 30 feet – from 65 feet down to about 30 feet --but will be free from the interference caused by the structure itself.

"Being on the back of the tower means the noise is much stronger," he said.

Continued on next page

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The work crew included, in addition to William and Jimmy: Roy Kunishige, WH6FYK; Vice President Jim Huntley, WH6FQI; Joe Rosenbaum, WH6FZH; and Bill Gray, .

During the net that Monday, Roy – a Hilo taxi driver -- confirmed mission success by checking in from locations where he hasn't been able to hit the repeater in a long time.

He called the work party "an educational and fun time," and said "everybody pulled together like a team and we knocked it out of the park."

Jim said "it was a fun trek in and out," and everyone did a terrific job. "Hats off to Jimmy and his assistant."

Jimmy also gave credit to his personal crewman – Bill Gray – and recounted how they scrubbed the roof by hand, rinsed it with water trucked up the mountain, dried it with towels and borrowed leaf blowers, pinpointed the breaches in the roof, then fixed it so it won't leak.

"The roof is absolutely sealed," reported Jimmy, noting that five gallons of sealant were spread.

Two days prior, with the work party set to make the trek up the mountain the following day, much discussion at our Saturday, April 10, BIARC Zoom membership gathering focused on our ailing Kulani repeater.

"It's going to be difficult to pin it down," explained William, noting the prevailing intricacies. Variables affecting intermodulation can include humidity, temperatures, corrosion and frequency drift. The Repeater Committee is working to link Kulani and the Pepeekeo repeater, extending the range of connectivity and, at the same time, letting Kulani not have to be stretched so thin.

William thanked members for weighing in on this and other club issues. "Every voice matters," he said, with a nod to his prevailing leadership mantra: "This is YOUR club."

The work party was for maintenance and repairs, including sealing, drying and painting the leaky roof on the county's communications building, which also houses BIARC gear, and hooking up a borrowed antenna as a stand-in while the Repeater Committee waits for the linking equipment to arrive.

On the subject of linked repeaters,

Among the hams joining in the April Zoom gathering (from top down) were Roy Kunishige, WH6FYK, Mountain View; club Secretary Les Hittner, K0BAD, Hilo; past-President Pascal Nelson, AC7N, North Carolina; and Jimmy Love, WH6GEM, Glenwood.

Bob Schneider, AH6J, noted that at one time, repeaters were linked throughout the entire state. "In the past, we've done it, and it worked just fine," Bob said.

William and Treasurer Tony Kitchen, WH6DVI, emphasized the words "Big Island" in our club name, stressing the importance of linking radio communications all around the island and across Hawaii.

John Bush, KH6DLK, gave the month's educational presentation, focusing on the history of ham transitions as "technology moves forward" and the current transition to digital modes.

"The shift is occurring in an evolutionary manner,"

John explained. "Computers and other digital items are converging with radio." ***(See Page 7 for details.)***

This month's Zoom program will include an "introduction to emergency communications" presented by Tony.

For the club

THE PRESIDENT-AND-FRIENDS' CORNER

William Polhemus
NH6ET

It was oh-dark-thirty. A piercing sound rang out. It was an alarm. As he came to, confusion set in. Why was he hearing this now? What did the alert mean? He felt a sharp pain in his side. It was his darling wife, jabbing him and saying, "Turn that thing off." He did, and replied, "sorry, I must have set it by accident," as he slipped back asleep. A harder, more forceful jab came. "Get up, you have to go to Kulani," he heard through the darkness. "No, no it's Sunday, and Sonny's on call," he replied. "No, he's not. And, it's for the club, sweetie," she said sweetly — though while undoubtedly rolling her still closed eyes.

So begins the story of the BIARC work party to Kulani Cone. As most of you have heard, On April 11 a contingent of BIARC members, and one subject-matter expert volunteering his time to the club, headed to Kulani Cone to perform a repair at the site, as well as some general maintenance. This repair had been on weather standby for many months, as East Hawaii received an unusual amount of rainfall. Unusual even for East Hawaii. The work party was led by BIARC's very own Jimmy Love, WH6GEM.

This was a rare trip, of sorts. Historically, only a select few club members could ever visit the Kulani Cone location due to access requiring individual review and approval by the Warden of the Kulani Correctional Facility, whose prison grounds must be traversed to access the site. That permission was by no means guaranteed, and to keep the Warden's burden low has been restricted to members of BIARC's repeater committee. However, due to my professional activity, I have access to the back route to Kulani Cone while on official business. That route does not transit the prison grounds. And, since we were accessing the site on official business for our partnering agency, members not on the Repeater Committee could be escorted to the site!

The work party didn't actually start up the mountain until 0900. However, there was much work to be done before the trip could even begin. Materials and tools were loaded and secured for the long and bumpy ride. Team members crisscrossed the east side of the island getting the pieces lined up. A special effort was made by many, including several not headed up the mountain themselves. Tools were loaned by Doug Wilson, KH7DQ, and by Bob Schneider, AH6J — who's seen the cone more than most people, and for some reason didn't want to go. A special last-minute trip was made to ferry an item to the rendezvous by Paul Ducasse, WH7BR — who's also seen the cone more than many people, and also for some reason didn't go…

The six of us met up at the rendezvous location, and set off in three capable four-wheel drive vehicles. After the eternity that is the upper portion of Stainback Highway, we left the pavement. It takes me 45 minutes to reach the cone from gate one, on a good day, when nobody is looking. The day of the work party wasn't too bad, but it took over an hour to summit the cone from the time we left the pavement. Roy Kunishige, WH6FYK, had to stop almost immediately to put down his screwdriver HF antenna. But, sadly, the damage was done. Just a few meters of the road had taken it's toll. By the way, you should see Roy's new mount! He's ready to visit the Kauna Point tower down Manuka now!

We crept through the Pu'u Maka'ala forest toward the cone, carefully trying to minimize the rocking and rolling. Roy took the lead, with team leader Jimmy and our subject-matter expert Bill Gray. I escorted the group from the middle. And Jim Huntley, WH6FQI, and Joe Rosenbaum, WH6FZH, brought up the rear in Jim's briefly shiny new truck. We communicated between vehicles simplex on the 2M calling frequency. We knew we should take it to another frequency, but several other members wanted to hear along. We got a few check-ins along the way too.

About half-way to the cone in the back route, a mud pit has to be traversed in a tight right-hand turn. It was then that I realized that Roy's four-wheel drive was not engaged. I called out to the team and advised them that the terrain would get worse after gate three, and recommended that everyone engage their four-wheel drive no later than gate two. We proceeded up through gate two, and gate three. Along the way we passed through some of the most beautiful forest imaginable. This is what Hawaii must have looked like when my great-grandmother moved here. We took care to not abuse the trail, so as to preserve the pristine forest for your great-grandchildren.

After gate three, the actual ascent of Kulani Cone itself begins. That portion of the trail is highly variable in its condition. This wet season has not been kind to it. It is a bit washed out, and now consists largely of a mixture of golf-

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BIARC PRESIDENT-AND-FRIENDS' CORNER

ball, baseball, and basketball sized loose rocks. We spread way out, to avoid broken windshields and dented hoods. It was here that we discovered that Roy indeed engaged his four-wheel drive, long before the mud pit, but that the hubs had not automatically locked. After a brief pause on the steepest portion of the trail, the hubs were manually overridden into the locked position, and we summited the cone with bumpy ease.

The actual work party portion of the trip is a remarkable, but also boring, story. Remarkable because it ran like such precision clockwork. Boring, because with it running so smoothly, there were no dramas. Not even any socialization really. Everyone knew what had to happen, and took to their portion of the task. We only had a few hours of a weather window, and the reports from you operators down below, and the epic view of the incoming weather, made that perfectly clear. Jimmy had planned the operation so well that the repair went off without a hitch. The rooftop team found and repaired three perforations and one tear in the roof membrane — all likely caused by an object falling from the tower. Shortly before the leak started, a lightning strike had obliterated a 22-foot-tall antenna mounted 250 feet up the tower. It's likely that portions of the fiberglass radome fell on the roof, causing the damage. I remember finding a large piece of it on the far side of the shelter. Once the individual holes were addressed, they sealed the entire roof membrane. That sealant was the cause of the weather delay. The roof had be cleaned and dried before it could be applied. And it had to skin over and begin setting before it could be exposed to moisture, such as rain. It's not like it ever rains in the Pu'u Maka'ala forest, right?

Jim and Joe took care of the FOD walkdown in short order, and then took to smothering every rusty joint of the fence they could with aluminized paint. The idea being to quiet down the intermodulation sources from the "rust bolt effect." We certainly couldn't eliminate all of the problematic intermodulation sources. But, they took care of some of the worst that could be reached from the ground. Nobody knows rust until they have been to Kulani. The whole work team has a new understanding of Hawaii rust, I am sure!

While the hard work was being done outside, I set to work inside to see what could be done about the ever-worsening noise plaguing our beloved '76 repeater. The filter cavities were checked, which is a chore due to the sheer number of them, and because of the complexity of the filtering scheme required. The filters were fine, as expected. Next up was the antenna and the feedline. Except, there is no way to test those without taking the repeater off of the air. Knowing this, I had in advance begged a favor from an agency I work with regularly. They have a VHF antenna mounted on the front of the tower, near the base, well below ours. I knew their plans were at least a few weeks from execution. I groveled until they relented in letting me use the antenna for a short-term test.

First, I swept an S11 reflection coefficient measurement of the antenna we would be borrowing with my Anritsu vector network analyzer, finding it adequately resonant and reasonably matched down to our input frequency. The antenna is for the VHF public safety band, several megahertz above our 2-meter amateur band; so that was a concern. I did note that the passive intermodulation (PIM) we have been experiencing is also being received on this antenna. I cabled in the proper feed line to our cabinet, so that we could access the borrowed antenna's feedline, which enters into the building in a different rack row than where we reside. In this case, I used CommScope FSJ4-50B, known as "Superflex." I then quickly rolled the repeater's receiver off our antenna and over to the borrowed antenna. As suspected, rolling the receive side of the repeater to the antenna on the front of the tower immediately made a HUGE difference. I similarly swept our receive antenna, finding it to be perfectly resonant and matched exactly at the 2-meter amateur band. The cable, connectors, and lightning arrester all swept perfectly in both the S11 reflection coefficient measurement, and in the pulsed CW and swept spectrum time domain reflectometry measurements. Our antenna is perfect. Its location just isn't.

I had a chance to show off my gear to Roy, who got to see the worst of the PIM noise spurs. They can be hard to catch without a dedicated PIM testing device. But they are so strong into our antenna, and were lasting so long that they were peaking off the scale on my vector network analyzer even with its slow refresh

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BIARC PRESIDENT-AND-FRIENDS' CORNER

rate. Being behind the tower reduces our signal to noise ratio coming into the repeater. In the presence of such terrible PIM noise, our obstruction weakened signals just can't compete!

With the work done, we broke for a responsibly socially distanced lunch. Jim had graciously supplied the food, and Roy supplied and manned the grill. Actually, the hardest repair of the whole trip might have been that of getting the grill to light. Before we left, we made a bunch of radio checks, finding the repeater input cleaner than it has been in a long time. So much so, that I went back in and removed two pass cavities from receive filter stack and then tested again. Then, right as we were packing up to leave, the eureka effect kicked in. We always try for as high an antenna mounting position as we can get. "Height is might," as it is often said. However, to get any height on this tower, we have to be on the back of the tower. It's the only space that is open (it's only open because it's not very useful.) Yes, the coverage area is increased by being higher, but there is such a penalty to the signals of the majority of the repeater's users. Maybe, just maybe, we can come to the front of the tower, if we come all the way down. Like to the bottom. Lower even than the antenna we are borrowing.

The road to Kulani can be full of adventure

That 40 or 50 foot reduction in height will reduce the reach of the repeater in the fringe areas. That's an easy call if you ask someone who operates close to the repeater. But it's a game changer to those who live in the beyond-the-fringe "listen-only" range of the repeater. There are indeed a few who can only listen to the nets, but cannot join. But we are well on our way to having the infrastructure in place to link repeaters. Everything in radio land comes as a tradeoff though. Coming down the tower will derail the existing work and plans to re-link into Ka'u. So, it seems the plans have shifted. I am confident that even if we do get to move our antennas, and ultimately lose the line of sight to the Ka'u location, we will still find a way. The BIARC Repeater Committee has much work ahead.

Shortly after, we left the site, and began the shaken-not-stirred trip back down the mountain. About halfway out. It started to rain. We had the needed weather window, with not even an hour to spare. We were tired, and maybe a little tired of the jostling. But we were happy. A few days after the work party, I was told by the agency loaning us the antenna that their project is on hold for a few weeks longer than expected, so we can keep using their antenna for the time being. They do not wish to be identified in our newsletter. In fact, I have been asked by several agencies to never mention them by name in the newsletter. It seems that it generates an undue number of phone calls to their offices demanding similar privileges and site access. But we thank them anyways, in their anonymity.

A temporary plan is being worked on for an interim solution. In the near future we will have to give the borrowed antenna back. However, that will happen before the approvals can be sought and received to potentially have an antenna on the front of the tower, near the base. How that particular sausage is made is never pretty. Best leave that one to professionals. Have you ever seen a fat, bald man on his knees, groveling? It could happen. Like I said: The BIARC Repeater Committee has much work ahead.

Thank you again to the BIARC work team:

Jimmy Love

Roy Kunishige

Jim Huntley

Joe Rosenbaum

A very special thank you to Bill Gray, who though not a member of BIARC (yet) donated his time and expertise to assist Jimmy with the roof work. And, thank you to those who donated their time, skills, tools, materials, and labor to the effort, if you couldn't join us on the cone. The effort indeed extends beyond the names listed here.

William – NH6ET

KH6DLK talks digital technology: Notes from BIARC Zoom session April 10, 2021

Building Blocks for Digital Communications

- Radio
- Soundcard interface – Don't use the default soundcards in your computer
- Computer
- Digital program software

Goal of this program

- To get you running on VHF/UHF packet
- Once you're running on packet, get you connected to the Mauna Loa packet repeater
- Give you the tools to connect to multiple packet repeaters including winlink

Back to the Future

- Packet was popular in the late 70's through the 90's
- Packet is fast enough and robust enoug to still be relevant today
- Packet is viable as a VHF transmission mode for Winlink

What is Packet?

- AX.25 packets are baskets of characters
- There may be up to 256 characters in a packet
- The sender's and recipient's call signs are embedded in the packet header
- Packet contents may have characters from the keyboard or characters that are parts of a computer file

How does it work?

- Your hardware or software TNC (terminal node controller) takes the characters that you want to send to the recipient, assembles them into a packet, and then modulates a radio signal with these packets.
- At the receiving end, the TNC demodulates the tones into digital form, unpacks the characters from the packet and displays them on the screen

How Fast is Packet?

- Olivia 8-250 is about 15 wpm
- CW averages about 20 wpm
- 45.5 baud RTTY is 60 wpm
- 300 baud packet is 300 wpm
- 1200 baud packet is 1200 wpm
- 1200 baud packet is also used for one of the transmission modes for VHF Winlink
- 1200 baud = 120 characters of bytes/sec
- At this speed, a 24 kb file can be sent in only 3.3 minutes

Why?

- Computers and other digital items are converging with radio, for example:
- SDR receivers tied to computers
- HF & VHF radios tied to computers through digital sound card interfaces
- Digital communications modes:
  - RTTY
  - PSK1
  - FT8
  - Olivia
  - Winlink
  - Packet

Yes, we had digital in Hawaii in 1963

A note about speeds

- Some digital modes are very accurate and others are not
- Olivia 8-250 is slow but extremely accurate down to very weak signal levels
- FT8 is slow but very accurate
- 300 and 1200 baud packet is also very accurate because every packet is checked at the receive end and retransmitted if necessary
- CW, RTTY, and PSK31 are not very accurate because they lack error detection and correction protocols

Standardized Parts for a Packet Setup

- To make getting on the air on VHF packet as simple as possible, we have come up with the following standardized parts:
  - VHF base or HT radio capable of connecting to a Signalink soundcard interface
  - Signalink hardware sound card interface with the correct cable for your radio
  - Windows 7 or later desktop or laptop computer
  - UZ7HO Soundmodem software TNC
  - UZ7HO Easyterm terminal software

Hardware Configuration

- Radio – only needs to be configured for the packet frequency
- Signalink – internal jumpers need to be set for the specific cable and radio
- Computer – needs to be setup to recognize and set the levels to/from the Signalink

John Bush, KH6DLK

Getting on the air with Packet

- After installing and configuring the software and connecting the hardware to the radio you'll do the following:
  - Set your radio to 145.090 simplex
  - In Easyterm, CONNECT TO: MLOA (Mauna Loa)
  - Once you get the connected message, you can proceed to connect through to other packet repeaters

Packet Repeaters

- Packet repeaters are much simpler than a 2M voice repeater
- Because packet repeaters use a Store and Forward protocol they can forward packets through a chain of connected repeaters
- Any 2M transceiver on the packet frequency can send packets down a chain of repeaters connected together (including your own station)

Frequency Agility

- A problem with voice repeaters is that they can only operate on a single frequency pair so they become overloaded very quickly
- Packet repeaters are frequency agile so you can have multiple parallel traffic sessions running for example at every 20 khz going up the band

The bad news

- You can connect through successive packet repeaters all the way over to Oahu
- Because of the Store and Forward structure, groups of packets you send take additional time going through each packet repeater
- For example: our 24 kb file going to Oahu will take 3.3 minutes through the Mauna Loa repeater, 3.3 minutes through Haleakala repeater, and 3.3 more minutes going through the Oahu endpoint repeater for a total of 10 minutes to send the file
- So, you need to send smaller files and be patient

Conclusion

- You should come away from this presentation with the understanding that 1200 baud is still a very viable and useful communications mode
- Once you have an operating packet station, you can expand it to higher level communications such as Winlink

See you on Packet!!!

Service May 19 for Richard Darling

Richard Shelley Darling, AH7G, SK, was a member of the Hilo United Methodist Church and sang in the choir until his death last year. His celebration of life service will be held there on May 19t at 10 AM. Masks and social distancing are required. He will be interred at the Hilo VA cemetery in a private ceremony later that day, reports his wife of more than two decades and fellow ham, Barbara Darling, NH7FY.

Richard was born on November 30,1933 in Binghamton, New York and passed away on August 19, 2020 at his home in Keaau. He lived in New Jersey, Pennsylvania and New York during his first 7 years. His family then moved to the Panama Canal Zone where he lived for 3 years (1940-1942) leaving to go back to New York in the middle of the second world war. The family moved back to Panama in 1946 staying until 1948. From there they moved to Arlington, Virginia where he graduated from high school in 1951. While attending Newark College of Engineering in Newark, NJ studying electronics and later Capital Radio Engineering Institute, Richard became an amateur radio operator in 1953. He later went to work for IBM as an electronics technician. Shortly thereafter Richard was drafted into the army where he trained on the Nike missiles program. He was stationed at Fort Bliss, Texas and Fort Walton Beach, Florida. After the army he returned to IBM and spent his remaining time in San Jose, California. After early retirement from IBM he spent time working for Lockheed in the San Francisco bay area. Richard's home in San Juan Bautista, California was destroyed in the 1989 Loma Prieta earthquake resulting in a move to El Paso, Texas.

In 1995 Richard met Barbara Hess Gottsbend in Florida while he was helping to take care of his Dad. Richard and Barbara were married in 1999 and relocated to Hawaii the following year.

Richard was a ham radio operator for 67 years. Over the years he operated in Antigua, Guantanamo Bay, British Virgin Islands, Christmas Island, three different times on Midway Island and four trips to the Cook Islands in the South Pacific, California, Texas, Florida and Hawaii . In 2011 he started a daily communication schedule with Micronesia until his dementia stopped him in 2016 and Barbara took over his schedule. He was active in the Big Island Amateur Radio Club and a member of ARRL for over 60 years. In April 2017 he and Barbara were awarded the 2016 Humanitarian Award from ARRL for their work with the Micronesians. He had many different call sign over the years but his Hawaiian call was AH7G.

Richard and Barbara Darling at a BIARC gathering a few years ago.

Richard loved to travel. Besides the trips for his ham radio operating he made two trips to Europe, and four trips to New Zealand. One of these trips he got to spend a couple days in Sydney, Australia and stayed at Darling Harbor.. While visiting in New Zealand he often commented that" our rental cars always automatically stop at Tip Top ice cream stores". Needless to say, Ice cream was his favorite food.

In addition to his wife Barbara, Richard leaves behind a son Richard (Ria) in Stafford, VA, a grandson Richard in Nevada and a daughter Barbara Naslund (Steve) in Salinas, CA as well as a brother Ken in Minnesota, sister-in-law, nieces and a nephew. He is predeceased by his parents James and Mildred Darling and brother Lewis.

BIARC - Repeater Fund Summary
As of: 04/08/2021

Year	BIARC Equipment Budget	Donations (Credit)	Equipment Purchases & Maintenance Costs	$ Covered By Repeater Fund	Repeater Fund Balance
2017	$600.00	$273.00	$932.75	$332.75	-$59.75
2018	$1,000.00	$235.00	$266.98	$0.00	$175.25
2019	$500.00	$255.00	None	$0.00	$430.25
2020	$500.00	$501.72	$436.78	$0.00	$931.97
2021	$600.00	$895.00	$168.39	$0.00	$1,826.97

Notes: This fund holds amounts donated by club members to be used for repeater maintenance & upgrades.

Public Service Communications Committee Update

April 10, 2021

American Red Cross Training Exercises:

The nationwide and Hawaii State ARES efforts continue to prepare amateur radio operators to assist the ARC in emergency communications. The latest Winlink exercise took place on Thursday, April 8th. Visit the National Groups' page at https://arc-emcomm-training.groups.io/g/main and click on the messages link to get caught up on the exercises so far, and informed about upcoming events. Hawaii ARES sometimes makes modification to these exercises. Look for updates from Clem Jung, KH7HO or your ARES DEC, and modify the exercise procedure as requested. These updates are generally distributed via groups.io (KHRC, HiCoARES, BigIslandRadio) and biarc@mailman.qth.net discussion groups.

Hawaii Voluntary Organizations Active in Disaster: (HVOAD)

The BIARC PSCC is looking for FCC licensed volunteers to work with HVOAD, and its member organizations. If you would like to become involved, please reach out to Tony Kitchen, WH6DVI for more information.

The test net continues on the first Saturday of each month on the Maunakea repeater, from 12 Noon to 1 PM. All amateur radio stations are invited to participate. The repeater will be activated on the frequency of **146.720 MHz, 600 kHz Negative Offset, PL tone 100.** This is a directed net. It allows for the testing of the repeater, as well as the mapping of the coverage area. Stations also can get a better idea of the equipment needed for successful emergency communications on this repeater. This is a repeater of last resort, for use during a Governor declared emergency when other local repeaters or simplex modes will not suffice.

TIPS:

Check-ins are allowed anytime there is a break in traffic.

Transmit as you would during an actual emergency situation, using best practices.

Use Pro-Words: CHECK-IN, CHECK-OUT, PRIORITY, EMERGENCY, ROUTINE, DIRECT, etc as appropriate.

See the Maunakea Repeater SOG published on http://biarc.net.

Big Island Monthly Siren Net:

The next monthly siren net will be held Monday, May 3rd. Please visit the website at https://nh6tu.org/forms/BigIslandMonthlySirenNet.pdf for details.

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Hamakua Simplex Net:

Tony Kitchen, WH6DVI

The Hamakua simplex net continues to be held each Monday starting 10:30 AM, at 146.400 MHz. This net is an attempt to link stations around the island via simplex relay. If you do not hear net control, call out and see who you can raise. Mel, KH6EKD and others can often act as relay from Puna and Hilo to further north. Join the BigIslandRadio@groups.io group to receive more information on this net. Visit https://groups.io/g/BigIslandRADIO for more information.

Salvation Army Team Emergency Radio Network: (SATERN)

We encourage all amateur stations to participate in the SATERN nets. The list of available nets is at: https://qso.com/satern/SATERNNets.html

During an emergency the frequency of **14.265 MHz USB**, and 14.312 MHz USB as alternate is used. The 20 meter SATERN on SSB is held daily, Monday – Saturday, with early check-ins starting at 15:00 UTC. The alternate frequency of 14.312 is used if necessary due to QRM or frequency occupation. You can also join the discussion group at https://satern20.groups.io/g/main. If you are able to participate in a SATERN net, please reach out to a PSCC member and share your experience.

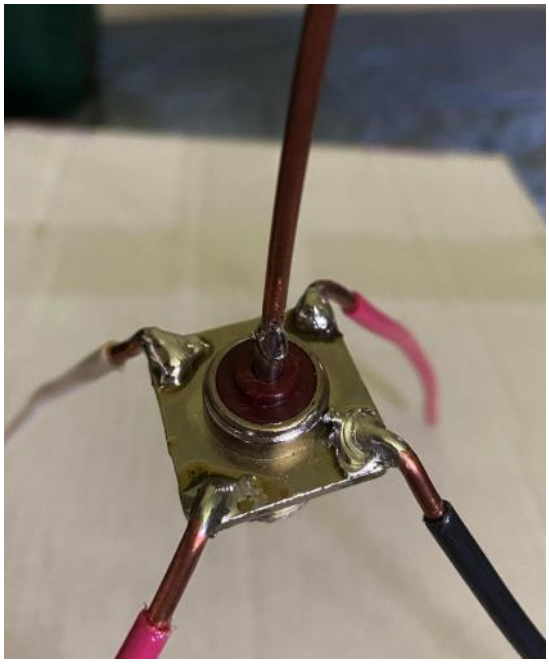
SKYWARN Training [NOAA]

The SKYWARN initial and refresher spotter training will again be provided by the National Weather Service Honolulu office. Because of the ongoing pandemic, training will be conducted virtually this year via GoToWebinar on **Thursday, May 20, 2021 at 6pm.**

Kevin Bogan, AH6QO

Training should take about 2 ½ hours with Q & A and some additional discussion with Kevin Bogan, AH6QO, SKYWARN HAM Coordinator. After registering, you can join us through the provided link or phone number that will be automatically emailed to you.

Register at https://attendee.gotowebinar.com/register/7372002677537685517



KH6HAK shares plans for home-built UHF drooping ground plane antenna

On a recent morning BIARC net, Hank Kaul, KH6HAK, described the little antenna he designed and built to enhance signal strength for C4 FM.

In response to interest shown by other hams, Hank shares these photos and instructions.

“This is a UHF drooping ground plane antenna for the C4 FM repeater, or other UHF band operations. It will work well across 440 to 450 MHz.” he reported. “This is simply wires soldered on to a SO-239 connector.

“The center conductor/radiator wire is 5-7/16" long from the connector plastic insulator. The radials are nominally 6" long from the corners and droop 45 degrees. I used a terminal lug on the top to prevent stabs from a sharp wire, and also so I could hang it from a cord if needed.

“Number 12 size wire works well. I used number 10 wire and I had to file the diameter down a little bit to fit the connector terminal.

“Here (photo: top right) is the antenna hanging from my plastic window blinds in operation. I used a clip-on ferrite choke on the coax for good measure.”

BIARC Executive Board Meeting

APRIL 10, 2021

A. Begin Meeting.

1. Call to Order by President Polhemus at 1217.
2. Quorum Call

   Board members: Leslie Hittner, Tony Kitchen, Paul Ducasse, James Huntley, William Polhemus, Bob Schneider

   Absent: Jim Sugg

   Guests: Glenn, (Now AH6EI), Jimmy (WH6GEM), Cory (KN6ZU), Roy (WH6FYK), Alan (KH6ATU), Joseph (WH6FZH)
3. Secretary's Report and Minutes (03/13/2021)

   William **moved** and Tony **seconded** to approve the Minutes of the March meeting as published. Motion **passed** with no objections.
4. Treasurer's Reports

   Leslie **moved** and William **seconded** to approve the Treasurer's Reports subject to audit. The motion **passed** with no objections.
5. William announced that he would entertain comments, questions, and suggestions about recent repeater issues at the Monthly Activity at 1400.

B. Committee Reports

1. Digital Systems – written Report attached. No action items.
2. Education and Outreach – written report attached. No action items.
3. Operating Activities – oral report given No action items.
4. Program – oral report given. No action items.
5. Public Service Communications – written report attached.

   William **moved** and **Tony** seconded that
6. Voice Repeaters – oral report given. No action items.

C. Old Business

None.

D. New Business

1. Paying dues 1 or more years in advance

   The Board took no action but suggested that the Treasurer keep advance payments isolated in the books, placing them into the general fund in the appropriate year by tracking memberships including memberships paid in advance. Tony has a system in place that can deal with this issue.

   (There was a question about when members have voting rights. Once a person becomes a member, that person may vote in all remaining meetings. The Constitution only places a time limit on the determination of a quorum for Membership Meetings.)
2. Mercer Insurance Equipment List

   Changes to the equipment list will be made after the infrastructure expansion. Items can be added or subtracted from the list at times other than policy renewal. The policy renews at the start of the month of April.

   The liability policy will be paid this month or in May.
3. Hawaii VOAD Designated Representative

   William **moved** and **Tony** seconded to appoint William as an interim BIARC designated representative to the Hawaii VOAD Council. Motion **passed** with no objections.

E. Other Business

1. HCCDA has asked BIARC for a favor

   Civil Defense has asked BIARC to install a repeater, duplexer and antenna at a site at Fire Station 16 in Waikaloa Village. This system will provide CERT teams with additional communications as well as provide a benefit for amateur communications in general.

   The system Amateur Station License will be in the name of ACS and HCCDA and a "radio club" formed for that purpose. Bill Hanson and Paul Agamata are both working on this project for HCCDA.

   Tony suggested that KHRC be notified that this is happening, since this is "their" radio club territory.

   Although the Board took no action, there was overall approval of this project.

   This project will be managed by the Voice Repeater Committee.

F. Adjourn

The meeting was adjourned by William at 1312.

Respectfully submitted,

Leslie D. Hittner

Leslie D. Hittner, Secretary

Attachments:

Operating Statement
Repeater Fund Summary
PSCC Report
Digital Systems Report 2021-02-10
Education and Outreach Report 2021-02-13
Board Meeting Audio 2021-02-13

BIARC 2021 Budget & Operating Statement

	2021 Budget	Actual– 1/1/2021 To 4/8/2021
Income:		
Dues	$1,500.00	$1,305.00
Repeater Fund Donations	$500.00	$895.00
On-line Payment Fees*		$14.16
Total Income	**$2,000.00**	**$2,214.16**
Expenses:		
Club Liability Insurance	$325.00	$0.00
Club Equipment Insurance	$200.00	$186.85
Donations (PCC)	$25.00	$0.00
Equipment	$600.00	$168.39
Field Day	$370.00	$0.00
Printing (Membership Booklet)	$100.00	$0.00
Annual Build Project	$50.00	$0.00
P. O. Box Fee	$190.00	$0.00
VOAD Dues	$50.00	$25.00
Office Supplies/Bank Fee/Misc.	$40.00	$0.00
Website Costs	$50.00	$0.00
Total Expenses	**$2,000.00**	**$380.24**
Excess (Deficit)		**$1,833.92**
Bank of Hawaii Balance	as of: 4/08/2021	**$4,218.10**
Deposit Pending		$65.00
Namecheap Balance		$11.96
Paypal Account Balance		$1,029.75
Fund Balances: (4/08/2021)		
Repeater Fund	$1,826.97	
Emergency Reserves	$1,000.00	
General Fund	$2,497.84	
Total Funds	**$5,324.81**	

* 10% Convenience fee for on-line dues payments minus processing fees.

BIARC Digital Committee
Report for
April 2021
Board meeting

The Digital committee had no formal activity since the last board meeting. However, I have had discussions with John Garesché an educator that back in 2018 launched a balloon with APRS on board for tracking. He and some students will be doing this again this summer. He is looking for assistance to have more iGates that cover the east side of the island. They lost track of it when it traveled to the east side and never recovered the device. I was hoping we could assist with his experiment. John would like to speak at our June club meeting. He is also looking for internships in Science/Technology for some of the students. Additionally, I am currently working on a Pi image to use as a Packet node to be deployed at a future date. The program committee will ensure we afford him some time to speak.

Jim Huntley
Digital Committee Chair

Education and Outreach Committee Report

April 10, 2021

1. BIARC Lending Library – Leslie Hittner

a. The Lending Library is stored in a plastic tote with a drying material to keep the books dry. Doug Wilson will build a folding table/cart for transporting and displaying the library at eventual in-person club events. Leslie Hittner will provide Doug with the measurements for the table/cart. This would allow the library to be rolled from the car into the meeting room and displayed. We could then roll it back to the car; lift it into the back; and fold the stand (We may not be able to store it at the meeting site.)

b. Leslie Hittner has purchased a book that he will eventually add to the share library. It was written by a lawyer – new ham – from the Winona, Minnesota Club and is available on Amazon. He is recommending it for new hams, "Elmers," and people like Doug who are actively recruiting and training new hams.

Quick, Practical Guide to DOING Ham Radio
Everything You Need to Know to Get Licensed and Operating!

By Timothy S. Jacobson, N9CD

2. BIARC Website – Tony Kitchen

a. Tony has developed the new club website but needs assistance in color coordination. The site automatically adapts to computer, tablets, and cellphone display parameters. Content remains the same as that of the current website. Individual club members will be able to update their personal information and profile pages. Tony has set up Education and Outreach Committee members with accounts so that they can test some of the "self-use" features of the site as well as a "backpage" login that has editing privileges that can be used to add or change content, modify color designs, etc. Eventually, some board members, designated committee members, and committee chairs may be authorized to change website content relevant to their particular committees.

b. Tony then gave the committee an extensive demonstration of two possible website editors (the Block editor and the Elementor editor) that can be used on the new website. The committee consensus was to adopt the Elementor editor.

3. BIARC Classes and Testing Sessions – Doug Wilson

a. Doug had a testing session – in person – on Wednesday, April 7 in Volcano. This is the first in-person test in some time. A blind student took that test. A virtual class will begin on April 21 and will continue through May 26. An additional virtual class will be scheduled later into the summer or fall. Doug has also reserved space at the Kea'au Community Center in order to conduct the first in-person class beginning October 13 and running through November 17. This is predicated on the county's permitting the use of the Community Center by that time.

b. Doug plans on continuing virtual classes as an option because they have proven to be much more convenient for people who do not live in the immediate area – especially for weeknight classes.

c. Around the time of that first in-person class, Doug hopes to be able to publish a schedule of at least 4 in-person classes on the east side and possibly a couple more on the west side for 2022. In addition Doug will schedule virtual class offerings in-between the in-person classes.

d. All of these plans are contingent on pandemic progress.

4. BIARC Newsletter and Other Publicity Opportunities – Leigh Critchlow

a. In order to reach more and younger people, the Committee would like to publicize its activities and Amateur Radio in general by means of written, broadcast, and social media. Leigh gave us some general guidelines. If a Committee Chair or other club official wishes to have a news/information release written for distribution to the media:

i. Plan at least 4 to 5 weeks in advance.

ii. Provide Leigh with all of the important information needed to write the news release.

iii. Leigh will write the release(s) and turn them over to Leslie for distribution to the media.

New Technician License Prep Class underway on Zoom

Doug Wilson, KH7DQ, announces that the new Technician License Preparation Class via Zoom began on April 21. Folks interested in taking a future class and getting licensed are invited to contact Doug (douscelle@aol.com).

Also, as communications coordinator for the two Volcano-area emergency response teams, Doug conducts a CERT Radio Check Net on the first Saturday of each month at 9 a.m.

He welcomes any licensed operators wanting to check their 2-meter equipment to join in. The net starts promptly at 9 a.m. on the Volcano Repeater; 147.260 MHz; (pl 103.5 on the input only, i.e., transmit only). At the end of the regular two-round net on the Volcano Repeater, participants QSY to the alternate repeater 442.150 MHz (Kulani Mauka; pl 100.0) for roll call and signal reports.

"The purpose of the net is to check our equipment, check signals from various locations, have a short open discussion in a "normal" two-round net format, and practice switching to our alternate emergency frequencies," he said. "Everyone should make sure that their radios are programmed with the above frequencies, offsets and pl tones. See you on the air."