



June 2023

THE BIG ISLAND HAMGRAM

The newsletter of the Big Island Amateur Radio Club

THE PRESIDENT'S CORNER



Alan Okinaka,
KH6ATU

The enigma of electromagnetic waves

It was somewhat disappointing to search on Google this simple question: "What do electromagnetic waves look like?" It was rather disheartening to get several written and video citations saying that nobody knows!

I thought that because we use these waves so well for radio communications, someone must have figured out what they look like. There were several graphical representations of the waves showing their properties, how they're measured, and their effects, but nothing to show what they look like.

Just like visible light, radio waves are photons traveling through air and space, but what do they look like.

If we talk about water, we all know what it looks like in gaseous, liquid and solid form.

Same thing with air, with its abundance of nitrogen, oxygen and other gases.

We know and understand fire and it's a vital part of our life.

Maybe these electromagnetic radio waves are indescribable and we need to just accept this. But, I also wonder if we knew what these waves look like, would we be able find even more applications?

I even considered the basic elements of life, which are carbon, hydrogen, oxygen, and nitrogen, and

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KH6CZ photos

WH6EMN and WH6FZH give students a peek into the fun of amateur radio.

BIARC team introduces HUS students to world of ham radio

With the goal of introducing the younger generation to the world of amateur radio, BIARC members – in person and on the air – presented a well-received outreach program to students on May 19 at the Hilo Union School Science Day.

And each student who wanted to, got to try his or her hand at getting on the air.

"Many thanks to all those BIARC ham operators who participated in the Hilo Union Elementary ham radio event," said David Miller, KH6CZ, chairman of the BIARC Public Service/Communications Committee. "William, NH6ET, and Joe, WH6FZH, you were real workhorses and fielded much of the VHF traffic. We had an HF setup, generating much interest, but we could not get on the air with meaningful contacts.

"Jim, WH6EMN, had a large selection of handhelds on hand at the event. He was kept very busy administering their use around the school courtyard. Overall, it

was a very good event, with well over a hundred students participating. Positive feedback was well received, and fun was had by all," reported David.

Throughout the hour-and-a-half event, William Polhemus, NH6ET, kept track of on-air activity.

"Here are the stations who fielded the KH6CZ and WH6FZH third-party contacts, from the Hilo Union School 5th and 6th graders: NH6ET, WH6EBS, WH6DCC, WH6DEL, WH6LQ, KH6KU and WH6LC," William reported.

The fun science-oriented program was overseen by Jadee Takayesu, the hard-working Educational Outreach Coordinator for the Hawaii Science and Technology Museum in Hilo (hawaii sciencemuseum.org).

The museum is an educational non-profit, federally recognized 501

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BIARC meeting info

The club now gets together on the second Sunday of the month at Kamana Senior Center at 127 Kamana St. in Hilo.

The Executive Board meets at noon, with the membership gathering following at 2 p.m. Zoom access is provided courtesy of Les Hittner, K0BAD, at: <https://us02web.zoom.us/j/5181360132?pwd=bTVFTG5HZXowYVJ6OHpFcEV1dHJRUT09>



Hams on campus



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(c)(3) public charity dedicated to Science, Technology, Engineering and Math education on the Island of Hawaii.

Museum Executive Director Christian Wong thanked BIARC and its members for helping out with this year's event and prior programs coordinated by the museum.

"We really appreciate it," said Wong.

BIARC President Alan Okinaka, KH6ATU, thanked David and his crew "for carrying out a successful project. Well done!"

David offered a few notes from the event: "Many thanks to Jadee Takayesu at the Hawaii Science and Technology Museum for making the setup and logistics run so smoothly. We had helpers available along with handcarts, extension cords, tables, etc.

"We set up an X30 Comet

WH6EMN and WH6FZH share the basics of amateur radio with 5th and 6th graders during the May 19 Hilo Union School Science Day.

KH6CZ photos

antenna for the VHF connection, and it worked well, with good RF on our mobile Yaesu rig. We were on a covered walkway open to the central courtyard/field at the school, with plenty of room," David said.

"But we were in a poor (enclosed area) location for useable HF on our station with an Icom receiver; a more capable antenna is needed in future.

"Throughout the event, students came through in well-



controlled 'waves'," said David. "As you can see from the pictures, Joe and Jim were fully engaged throughout the whole event; they had a great rapport with the students. We are on Jadee's list for participation in future events

"The BIARC tri-fold brochures were well received and we pointed out our contact information for everyone," he said. "Students were engaged. The HTs were very popular, and we had a very good event."

THE PRESIDENT'S CORNER

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wondered if there was some association with electromagnetic waves.

And, how about the classical elements from ancient times of earth, water, air, and fire? Any association, I continued to wonder?

So, for now, I will accept that we don't know what these waves look like and be happy with their effect.

Mahalo, electromagnetic waves, for all you do!

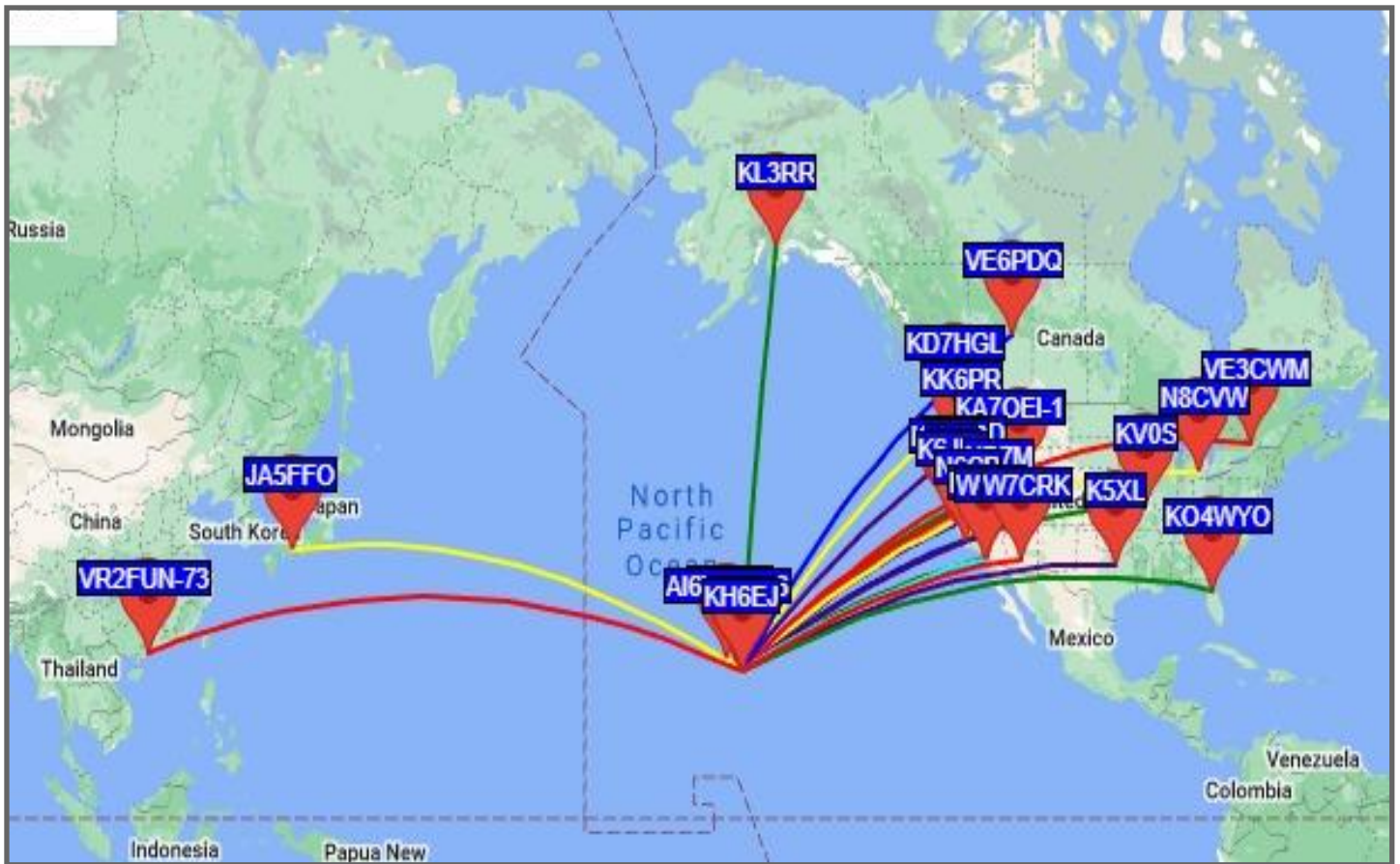
VE testing session produces high school hams

Volunteer Examiners (VEs) from BIARC conducted a license examination session on May 23 at Keaau High School for some of John Bonewitz's (KH6JB) Science Class students.

On hand were Doug Wilson (KH7DQ), VE Team Liaison, Jim Tatar (WH6EMN), Paul Ducasse (WH7BR) and Linda Quarberg (WH6LQ). Of

the three students taking their Technician License exam, two passed with flying colors, according to Doug.

A fourth person successfully renewed his expired license by passing the Technician License exam, also with flying colors. Congratulations to all, especially the new student ham licensees who are both juniors at Keaau High School!



WSPR Beacon KH6EJ back up and running and serving the world

On Saturday, May 27, WH6FQI and WH6EPS traveled to the Maunaloa repeater site. The goal was to repair the club WSPR transmitter. “We were able to replace the power source and get the unit back up and running,” said WH6FQI.

“We replaced the 12 volt supply which went to a buck converter to step the voltage down to the 5 volts the transmitter requires. This was originally done to accommodate a long run from the power source to the WSPR unit. However the current configuration has the unit less than 10 feet from the power source. It is now powered by a cell phone AC adapter with a USB Micro connector,” WH6FQI reported.

This transmitter is part of the International WSPR project. The transmitter is

connected to a 49:1 low power balun that matches to the EFHW wire on site. The balun was wound by WH6FQI and mounted in the enclosure with the transmitter.

Below is a link to see WSPR stations on a map. You can filter what band you want to view and enter the KH6EJ call sign. It is surprising how far it gets out on only 200 milli watts (2 tenths of a watt). The KH6EJ beacon operates on 80, 40, 20, 15, and 10 meters.

<https://wspr.live/gui/d/PkUWVi6Gz/beacon-band-activity?orgId=1&refresh=1m&var-beacons=KH6EJ&var-bands=3&var-bands=7&var-bands=10&var-bands=14&var-mindist=500>

The Hawaii Island repair project made a lot of happy campers around the globe.

“That’s really great news,” said the International WSPR Project leader, Roland Gafner: “We’re happy to see your Beacon back on the air. Great contribution from your Team.

“Your Beacon provides great insights into HF propagation paths worldwide,” said Gafner.

ARRL, FEMA sign agreement: Ham radio is as relevant as ever

ARRL The National Association for Amateur Radio® has entered into an updated Memorandum of Agreement (MOA) with the Federal Emergency Management Agency (FEMA).

The agreement will enhance cooperation between ARRL's emergency communications program, the Amateur Radio Emergency Service® (ARES®), and FEMA in providing disaster communications.

The agreement emphasizes the importance of skilled Amateur Radio Operators in times of crisis and the role of ARES leadership within the emergency communications space.

ARES (see the ARES fact sheet at www.arrl.org/ares) is a network of trained Amateur Radio Service licensees organized across the country to provide communications and other support to served agencies, such as local governments, hospitals, and disaster response charities.

More than 20,000 ARES volunteers actively participate in the



ARRL program. In 2022, they provided more than 420,000 labor hours of service saving local officials \$13.4 million in personnel costs.

Each member of ARES has specialized training in emergency communications. Many have also completed training in the National Incident Management System (NIMS) in order to integrate with local officials during an emergency response.

In March 2023, FEMA released the final version of the NIMS Information and Communications Technology (ICT) Functional Guidance, which includes

radio amateurs in the response ecosystem and national emergency preparedness.

"The agreement is representative of the continued commitment and cooperation between FEMA and ARRL," said ARRL Director of Emergency Management Josh Johnston, KE5MHV.

"Serving our country during emergencies is an important service provided by ARES volunteers and a principal purpose of our Amateur Radio Service. Our well-equipped volunteers bring their training, use of innovative technologies, and community partnerships together to serve before and during disasters."

FEMA announced the new agreement on Twitter, stating, "We recently signed a new MOA with @arrl -- establishing our partnership with licensed, voluntary amateur radio operators to support response [and] recovery efforts. We're honored to work side-by-side to meet the needs of millions in the wake of disasters."

Read the full story on the ARRL website.

[HawaiiARES] biweekly Winlink practice

Aloha, HI ARES members:

A new Winlink practice started May 29. Please check your Winlink account for the instructions.

If you are not a member of this net and are interested in joining the Winlink practice, please send me a Winlink message (NH7IT).

If you want to learn more about Winlink, check out <https://wavetalkers.com/resources/digital/winlink.php>

-- Van NH7IT ASEC-Pac

~ 2023 BIARC Roster ~

Executive Board officers and committee chairs

President

Alan Okinaka, KH6ATU

Vice President

James Huntley, WH6FQI

Secretary

Joseph Rosenbaum,
WH6FZH

Treasurer

Tony Kitchen, WH6DVI

At-Large directors

Roy Kunishige, KH6KU, and
David Miller, KH6CZ

KH6EJ station custodian

William Polhemus, NH6ET

Public Service/

Communications Committee

Chair David Miller, KH6CZ

Operating Activities Committee

Chair John Bush, KH6DLK

Education and

Outreach Committee

Chair Leslie Hittner, K0BAD

Programs Committee

Chair James Huntley, WH6FQI

Digital Systems Committee

Chair James Huntley, WH6FQI

Voice Repeaters Committee

Chair William Polhemus, NH6ET

Meeting Refreshments

Committee

Chair Robert Schneider, AH6J

BIARC Hamgram

Editor Leigh Critchlow, WH6LC

Club website: <https://biarc.net>

Links to some great emcomms discussions

FYI -

Below are links to some great Amateur Radio discussions that I encourage everyone to check out. One is from FEMA director Craig Fugate, KK4INZ. It described how every amateur station has a role in emergency communications. His presentation is aimed at Emergency Managers, yet I expect that the Amateur Radio community will find it interesting and refreshing. Please enjoy the following:
https://www.youtube.com/watch?v=z0zk_jr4E7s
73, Tony Kitchen, WH6DVI

— Forwarded message —

From: **Peter Newell, KC2WI**
via groups.io <prn628@yahoo.com@groups.io>

Date: May 23, 2023 at 4:23 AM
Subject: Re: [EmComm] Common Ground

To: <main@sec-emcomm.groups.io>

The FEMA Professional Development IS courses (ARES Level 3) emphasize involving the "whole community" including volunteer organizations in emergency response. Evidently, FEMA recognizes that the re-

sistance to using volunteers is a problem.

FEMA has also presented 3 webinars since 2020 specifically encouraging the use of Amateur Radio:
Ham Radio for Emergency Managers (4-26-2023)
<https://fema.connectsolutions.com/plp23vy9osww/>

Effective Use of Amateur Radio Volunteers in County Emergency Operations (3-30-2021)
<https://fema.connectsolutions.com/pskd8xpg6230/>

Amateur "HAM" Radio for Emergency Managers (10-22-2020)
<https://fema.connectsolutions.com/plqiby693o3d/?proto=true>

We also have former FEMA Director Craig Fugate's various endorsements including this:
https://www.youtube.com/watch?v=z0zk_jr4E7s

If we can just get the message to those who are reluctant. I think the message has to get to more than just emergency managers, it has to get to the elected officials because they are the ones who hire emergency managers and more importantly control the budget.

— **Tony Kitchen, WH6DVI**
ARES, ASEC - Hawaii County

Hawaii Ham Radio classes via Zoom

Class Type Days / Times Dates Status

General —
Mondays 6 pm to 8 pm 6/5/23 - 7/3/23
Planned

Technician —
Mondays 6 pm to 8 pm 7/31/23 - 9/18/23
Planned

Technician —
Mondays 6 pm to 8 pm 10/16/23 - 11/27/23
Planned

***To sign up, contact: Steve Kawamae: skawamae@gmail.com**

Volcano VERT Radio Check Net held on second Saturday of the month

Coordinator and net controller Doug Wilson, KH7DQ, invites all licensed amateur radio operators to participate in the Volcano VERT Radio Check Net on the second Saturday of each month.

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 format on the Volcano Repeater, we will QSY to our alternate repeater **442.150 MHz (Kulani Mauka; pl 100.0)** for roll call and signal reports. We will then close this portion of the Net and QSY to the Volcano VERT **146.490 MHz** simplex frequency," said Doug.

"On our Volcano VERT simplex frequency (**146.490**

MHz) we will do a roll call and exchange signal reports with each station until all stations on this frequency have been contacted. This will conclude the Volcano VERT Radio Check Net.

"The purpose of this net is to 1) check our equipment, 2) test your ability to reach the Volcano Repeater, 3) check signals from various locations in the Volcano area and the East side of Hawaii Island, 4) have a short open discussion in a "normal" two-round net format, and 5) practice switching to our alternate emergency frequencies.

"Everyone should make sure that their radios are programmed with the above frequencies, offsets and pl tones."

Hams on call *and* on the ball

When catastrophe calls, the unseen heroes of Vancouver Island's last radio lifeline are ready

David Miller, KH6CZ, has shared this story of the impressive amateur radio system which for more than three decades has served as a lifeline for folks outside the range of cell service as well as a network providing emcomms during times of crisis on Vancouver Island. The story was published online May 12 by CHEK Media. <https://www.cheknews.ca>

KH6CZ noted that "The current typhoon experience on the island of Guam is a sobering challenge to Emergency Communications capabilities.

"Here's an interesting story on Emergency Communication up in my old home of Vancouver Island. It's a much larger island than Hawaii but with many of the same threat considerations that we have here. A little different perspective could trigger some thoughts."

For over 30 years, the Island Trunk System has served as a lifeline for those out of cell service and as a network for emergency communications in the event of a calamity.

Nestled across the many mountain peaks of Vancouver Island, an amateur radio system serves as a crucial communication link from Victoria all the way to Port Hardy.

For over 30 years, the Island Trunk System has served as a lifeline for those out of cell service and as a network for emergency communications in the event of a calamity.

It's a series of radio repeaters that can carry the signal from a low-powered handheld device all the way across Vancouver Island.

Most might not see the benefit of such a system, especially when in this day and age everyone has a cell phone that can dial anyone, anywhere.

However, there's a group of impassioned hobbyists who stand by the technology and boast its capabilities.

Across B.C., they operate on behalf of Emergency Management B.C. and volunteer their time as



Group shot: Courtesy of Chris Anton



The series of radio repeaters can carry the signal from a low-powered handheld device all the way across Vancouver Island.

amateur radio operators, carrying out programs like the one on Vancouver Island known as the Capital Regional Emergency Radio Coordinators Committee.

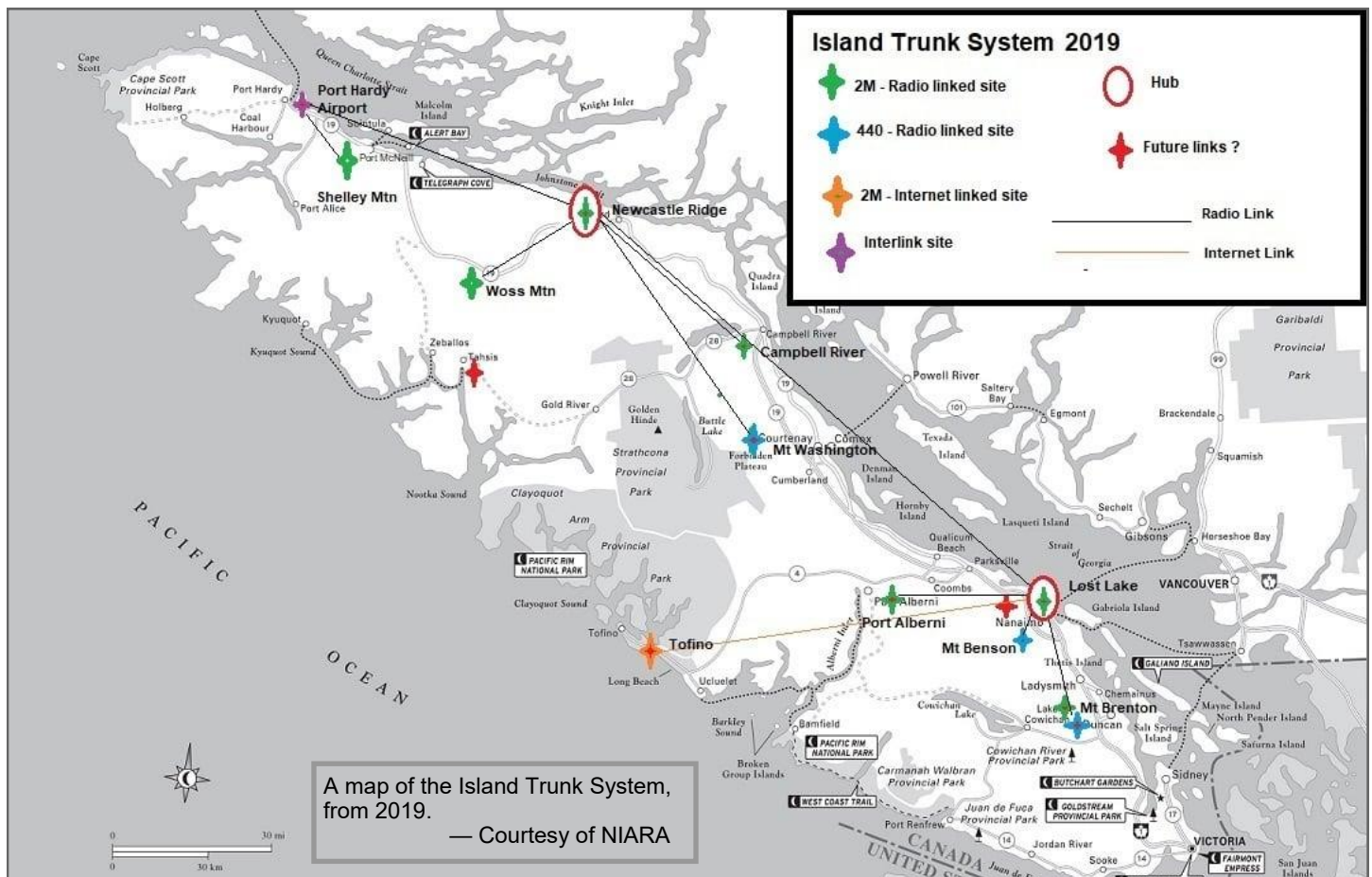
Every Wednesday, at 7:30 p.m., they get on the air and practice with the system to hone their ability for the day they might have to use it.

The initiative is a true testament to the

power of community and collaboration, with each area of the Island having its own dedicated equipment and volunteer group.

"Strictly speaking, each amateur radio club on Vancouver Island has the responsibility for the repeaters in their community," said spokesman Chris Anton.

These volunteers mainly operate the network out of dedicated rooms within their local fire halls, city centers, or government buildings —



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but that's not to say it can't be utilized elsewhere.

In fact, the system operates year-round and those with their amateur licenses are permitted to use it freely, provided they get their permit and abide by the rules set out by Innovation, Science and Economic Development Canada.

"If I'm down in a valley in Nanaimo, if I can connect to a radio repeater up on the top of Mount Brenton, I can be talking to someone in the Cowichan Valley ... which is something we wouldn't be able to do if we just had our individual radios," said Anton, treasurer for the Nanaimo Amateur Radio Association.

For the most part, he says that the radio repeaters work within line of sight, which is why they're put on top of mountains.

The radio system is made up of roughly 14 repeater stations across the Island. Most of the equipment has been donated, salvaged, or repurposed from old commercial facilities, making this a genuine community-driven initiative.

"If you want to talk even further, you have to tie one repeater to another repeater, to another repeater site, to yet another repeater site. So if you're down in Victoria, with your handheld, you can talk to that repeater that's up on Mount Brenton, close to Chemainus. The advantage is Mount Brenton is 4700 feet high, so it has huge coverage. All across the south end of the Island, to the Gulf

Islands, down into Washington State."

Up and down the Island, countless hours of work go into maintaining the system. From upgrading the equipment to training new members and working alongside municipalities and the province to flesh out emergency preparedness programs, there's no shortage of tasks.

Anton estimates that it took an estimated 300 man-hours for several volunteers to carry out a multi-day project to upgrade their repeater site on Newcastle Ridge. Members from the various groups chipped together to rent a crane truck that they could drive to the mountain peak and use to upgrade the antenna.

The next big escapade the Hams have planned will take place this August. Members from the various groups across the Island will get together for 3-4 days of work. They plan to travel up Island to Port McNeill and replace a worn-out roof at one of their radio repeater relay sites.

While the Island Trunk System is used regularly for day-to-day communication needs, its true value is best demonstrated in moments of crisis.

In 2020, a man from Qualicum Beach faced a dire situation when he couldn't reach his phone inside his burning house. However, he did have a radio in his car that let him cast a call for help over the Island Trunk System which was ultimately answered.

"We were woken up at 4 a.m. by an explosion that shook the house," wrote Steve Goyette. "Jumping out of bed, my wife and I ran downstairs and it was quickly evident that there was a fire in my office."

He says that he had forgotten to grab his cellphone during the rush to get his family out of the burning building. By the time he realized, it was too dangerous to go back and get it.

"Fortunately I have Ham radios in all of our vehicles and the truck was unlocked. I tuned to our local repeater, which was linked all across Vancouver Island, and started calling emergency."

He says he was lucky there were several people listening.

"The fire department was quickly dispatched and arrived within 15 minutes."

It's not clear what Goyette could have done if no one had answered his call that day. Thankfully, he'll never know — as long as there are amateur radio operators on Vancouver Island who are willing to step up and provide emergency communication services, we can take comfort in the fact that they're ready to help.

These groups are constantly seeking new members to join their ranks, and chances are there is one in your area.

From Victoria to Port Hardy, there is bound to be someone on the air. 73.

— Mahalo to Roger Collins, digital news editor for CHEK Media, Victoria BC.

Big Island hams kokua statewide hurricane preparedness exercise

Makani Pāhili, meaning “strong winds” in Hawaiian, is the state’s annual hurricane preparedness exercise.

In early May, the State of Hawaii conducted its yearly test of statewide hurricane preparedness and response capabilities. The training and exercise effort is coordinated by the Hawaii Emergency Management Agency (HI-EMA) and includes participation by other state government agencies, county emergency managers, the National Weather Service, and other federal, private and nonprofit partners.

Activities test key elements of the state’s response to a simulated major hurricane, including the activation of the state and county emergency operations centers.

Darrell Asuka, KH6RDO, is the East Hawaii district emergency coordinator for ARES. He reported the following relating to Big Island participants:

“The information obtained from HCCDA auxiliary communications station KH7DQ, shows we had a total of 14 Big Island stations that participated in the hurricane Makani Pahili Exercise. Since the exercise was on a Friday, we had a net going Thursday night to accommodate people who had to work on Friday,” Darrell explained.

“There were 10 stations, including 1 spoke station, that passed situation reports on winlink Thursday night. There were 6 stations that passed situation reports on Friday. Several stations passed messages both Thursday night and Friday.

“Of the 14 stations that participated, 1 was located in Kamuela, 1 in Ocean View, 1 in Volcano, 3 in Hilo, 4 in Puna and 4 in Hamakua. There was 1 CERT team and 1 medical center represented.”

Here are the call signs and locations of the Hawaii Island stations that participated:

KH6DK - Kamuela
KH7MS - Ocean View
WH7BR - Volcano
AH6JA - Hilo
WH6FQQ - Hilo
WH6FZH - Puna
WH6FQI - Puna
WH6DVI - Puna
KH6CZ - Puna
KH6GM - Hamakua
KH6EKD - Hamakua
WH6FSI - Hamakua
KO6QT - Hamakua
KH6RDO - Hamakua
OLCERT (WH6FQI for Orchidland CERT)
FMCHIL0 (WH6FQI for Liberty Dialysis)

“I look at it like a controlled scrimmage that gives us and our partners a chance to test parts of our emergency playbook and make sure it’s strong, so we’re ready when lives are on the line,” said James Barros, HI-EMA administrator.

2023 Central Pacific Season Outlook

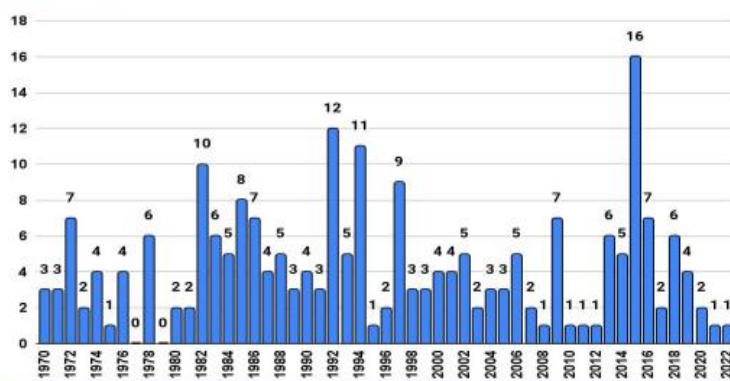
NOAA’s National Weather Service Climate Prediction Center predicts: A near- to above-normal hurricane season in the Central Pacific basin.

4-7 tropical cyclones (includes tropical depressions, storms and hurricanes) forming or moving into the central Pacific

- 15% chance of below normal season
- 35% chance of near normal season
- 50% chance of above normal season

This is **NOT** a forecast of hurricane landfalls in Hawaii.

Previous Seasons



There is a 50% chance of above-normal tropical cyclone activity during the central Pacific hurricane season this year, according to the outlook from NOAA’s Central Pacific Hurricane Center and NOAA’s Climate Prediction Center, divisions of the National Weather Service.

The outlook also indicates a 35% chance for near-normal activity, and only a 15% chance of a below-normal hurricane season. For the 2023 season, 4 to 7 tropical cyclones are predicted for the central Pacific hurricane region, which is located north of the equator between 140°W and the International Date Line. A near-normal season has 4 or 5 tropical cyclones.

Tropical cyclones include tropical depressions, tropical storms, and hurricanes.

“Hurricane season in the central Pacific region is expected to be slightly busier this year, compared to a normal season,” said Matthew Rosencrans, NOAA’s lead seasonal hurricane forecaster at the Climate Prediction Center. “A key factor influencing our forecast is the predicted arrival of El Niño this summer, which typically contributes to an increase in tropical cyclone activity across the Pacific Ocean basin.”

The outlook is a general guide to the overall seasonal tropical cyclone activity in the central Pacific basin, and does not predict whether or how many of these systems will affect Hawaii. The central Pacific hurricane season began June 1 and runs through November 30.

FEMA expands emergency broadcast network to Hawaii

By **Catherine Cruz**
Hawaii Public Radio

In a wide-spread disaster, many people rely on emergency radio broadcasts for the latest information. To strengthen its national network of broadcasting facilities, the Federal Emergency Management Agency has partnered with local AM radio station CBS 1500, or KHKA.



Catherine Cruz is the host of *The Conversation* and a member of HPR's news team. She has been a television reporter in Hawaii since 1983 and has won a number of awards.

ccruz@hawaiipublicradio.org

Hawaii in May joined other states in securing an emergency broadcast studio where two operators can live independently for 60 days. The facility is designed to withstand weather and human-caused disasters.

"We have 74 radio stations all over the country that participate in the National Public Warning System, also known as primary entry point or PEP. This is the first one in Hawaii," said Manny Centeno, FEMA's program manager for the NPWS.

The KHKA antenna tower site off Nim-itz Highway on Oahu is owned by **aio**, which also runs the media group that includes Hawai'i Magazine.

"This whole project is fitting for us, because it sits right on top of why our companies exist, and what our vision is for the future of Hawai'i," said Duane Kurisu, founder and chair of **aio**.

Centeno said Kurisu's company is not getting paid to house the emergency broadcast facility.

"He's volunteering his station and his property at that site in order to allow the government to install that equipment. Now, that is equipment that is going to be operated by the radio station, but it's completely a public interest matter for KHKA," Centeno told HPR.

The KHKA tower also acts as a relay site for FEMA to maintain communications with Guam and American Samoa.



The KHKA facility joins FEMA's National Public Warning System, which provides information during disasters.



In the Hawaii emergency broadcast studio, two operators can live independently for 60 days. The facility is designed to withstand weather and human-caused disasters.

In the aftermath of Typhoon Mawar, Centeno said the radio station on Guam is still on the air.

FEMA said the upgraded site is just in time for Hawaii, as the hur-

ricane season began June 1.

*This interview aired on **The Conversation** on May 25, 2023. The Conversation airs week-days at 11 a.m. on HPR-1.*

BIARC EXECUTIVE BOARD MEETING

Begin Meeting

- The meeting was called to order at 12:06 pm on Sunday, May 21, by Board Vice-President Jim Huntley. Venue was the Kamana Senior Center in Hilo.

Quorum

- Board Members: William Polhemus, James Huntley, David Miller, Joseph Rosenbaum (Tony Kitchen and Roy Kunishige joined a little later.)

Secretary's Report and Minutes

- William moved and David seconded that the April BIARC Board Minutes be approved as submitted. Motion passed.

Treasurer's Report

- William moved and David seconded to approve the treasurer's report, subject to audit. Motion passed.

Committee Reports:

Public Service Communications Report:

- Activities, Information Update:
 - ARES/Civil Defense Monthly Hawaii Siren test net
 - HCCDA Siren Net: (Initiative led by ARES DEC, KH6RDO with the support and assistance from KH7LM, local Allstar Sysops, and many BIARC stations.)
 - ARES continues to offer to prepare amateur radio operators to assist the Red Cross in emergency communications.
 - HVOAD Monthly Mauna Kea Repeater test net
 - The monthly test net continues on the first Saturday of each month on the Mauna Kea repeater, from 12 Noon to 1 PM. All

amateur radio stations are invited to participate. PSCC participation.

- 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 David Miller, KH6CZ (davroymill@gmail.com) for more information.
- Hawaii Volunteers Organizations Active in Disasters
 - BIARC Representative is a voting member of the HVOAD at monthly meetings of the General and Communication Committee forums.
 - Plan to add HVOAD information page to BIARC website and work with other BIARC Committees to increase awareness of HVOAD/COAD.
- Mauna Loa Repeater
 - Mauna Loa Repeater rescue efforts were supported during the year-end Mauna Loa eruption. On-site repeater equipment rescue by HIEMA in anticipation of total loss.
- Hilo Union Elementary School Demonstration
 - May, 2023 Ham Radio demonstration on Science Day at the Hilo Union Elementary School. Successful association with the Hawaii Science and Technology Museum. Repeat planned for September, 2023.

Operating Activities

- A Field Day location and alternate have been set. Kuhio, Kalaniana'ole Park as primary or Reed's Bay in Hilo as alternate. Plan to have two activities on Field day: The first will be a foxhunt and the second will be a demonstration of a relatively easy way to set-up an antenna for portable operations such as Parks On The Air, Summits On The Air, etc. There will be food and drinks available, feel free to bring any food or drinks you like to share.

Programs and Digital Systems

- No new activity in the past month. Next month will be a talk on radio direction finding along with a presentation by Tony of the upcoming county tabletop exercise along with a short discussion on this year's Field Day outing.



Repeaters

- The clamp has been ordered so we can install the standoff with clamps on the Kulanj Cone tower along with a microwave radio and dish plus an Ethernet switch/router in the Kulanj Cone cabinet. All the same has to be done at the Papeete tower site. The committee has approved a plan to replace the Kulanj temporary antenna with a colinear vhf antenna which will improve capture area. There has been a loss of access to the site for the last few months. A work party will be assembled sometime in the near future. We are waiting on the Ochidland C.E.R.T. team to put up their antenna then Jim Huntley will install the repeater. We have received one donation and have two upcoming donations. The first is four MSR-2000 VHF capable repeaters which will be donated to the North Hawaii Community Hospital club. The second donation consists of over \$100,000 worth of modern radio equipment including 9 GTR-8000 repeaters which are current production and public safety grade along with assorted other equipment. This will be a significant upgrade to our existing UHF repeater system. There are three projects earmarked for these repeaters. The plan is to direct the committee to donate older equipment to other clubs, as they deem fit. Tony moved and Jim seconded to make a list of recommended equipment to donate. Motion passed. We also have an upcoming donation of the late Pat Chu's repeaters and equipment. Joe motioned and Tony seconded that we accept the donation. Motion passed.

- The BIARC website has been moved to a new hosting company called DreamHost, LLC. Tony Kitchen is currently updating the BIARC membership roster, committees and officers pages to get things back where they need to be for 2024.
- BIARC licensing classes and testing sessions with Doug Wilson. They just finished a class and Doug has a list people who are interested in the next class, which will probably be sometime in the fall. If you know of anyone that's interested, please let Doug know and he will put them on the list.
- BIARC newsletter and other publicity opportunities with Leigh Critchlow.
- The BIARC newsletter now has a more formal name, The Big Island Hamgram.
- In order to reach more and younger people, the committee would like to publicize it's activities and Amateur Radio in general by means of written, broadcast and social media.

Old Business

- William moved and Tony seconded to approve an expenditure authorization of up to \$250 for Field Day expenses, subject to receipt. Motion passed.

New Business

- Tony motioned and William seconded to have the PSCC establish a relationship with the Boy Scouts of America in order to introduce amateur radio to the scouts and possibly help them attain their radio merit badge. Motion passed. Tony motioned and Roy seconded to establish William as the social media coordinator under the direction of the education and outreach committee. Motion passed. Tony moved and Roy seconded to accept Les Hittner's donation of an Anytone tri-band DMR mobile radio to the club. This radio is part 90 certified and can also be used to engage, with preauthorization, on part 90 frequencies used by public safety agencies.

The next BIARC meeting will be on June 11th at the Kamana Senior Center in Hilo. The executive board meeting will be at 12:00 pm and the club meeting will be at 2:00pm. Both meetings are open to members in-person and on Zoom.

Education and Outreach:

- BIARC lending library is currently available at in-person meetings and needs to be transported to and from the meetings each month.
- Leslie Hittner has created a tri-fold publicity flyer that will be passed out to non-hams at activities open to the general public. The flyer was also passed out to students at Hilo Union Elementary school for their Science Day where we did an amateur radio presentation and demonstration. Lastly Doug Wilson will distribute it to students who have passed their first amateur radio license.

Continued on next page

BIARC General Membership Meeting

Begin Meeting

- The meeting was called to order at 2:05 pm by Board Trustee William Polhemus.
- Non-members present: Eric (KH6CQ), Art (KF6PHC) and Chris (AH6GG)
- In-person members present: Les (K0BAD), Jim (WH6FQI), Kyle (WH6FQQ), David (KH6CZ), Frank (KD9ISM), Joe (WH6FZH), Gary (WH6EPS), Paul (WH7BR), Roy (KH6KU), Jim (WH6EMN), Thomas (WH6DLL) and Tony (WH6DVI)
- Online members: Tom (WH6EBS), Leigh (WH6LC) and George (WH6GUL, non-member.)
- Quorum: Yes (Total members 50.)

Treasurer's Report

- Operating statement through May 20, 2023
2023 budget- total expected income \$2,500, actual \$1630
Anticipated expenses \$2590, actual \$1,251
Major expenses include a \$2 million general liability coverage insurance policy which costs almost \$400 per year, club equipment insurance policy \$186 per year, equipment purchases such as repeater infrastructure and linking equipment, general maintenance and repeater tower clamp and a P.O. box fee of \$250.
- Membership dues:
Full Adult member dues is \$25 per year. For first time members there is a prorated rate of \$2.50 per month. You can send in a check to the P.O. box or pay in cash or check at an in-person meeting. There is also an online option to pay. Go to biarc.net and look at how to join to calculate dues, then click donate button which will lead to a secure PayPal site that accepts all major credit cards or PayPal account. Please add 10 percent to dues amount to cover our processing costs with PayPal.



amateur radio stations are invited to participate. PSCC participation.

- 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 David Miller, KH6CZ (davroymill@gmail.com) for more information.

- HVOAD General and Communication Committee

- Hawaii Volunteers Organizations Active in Disasters

- BIARC Representative is a voting member of the HVOAD at monthly meetings of the General and Communication Committee forums.

- Plan to add HVOAD Information page to BIARC website and work with other BIARC Committees to increase awareness of HVOAD/COAD.

- Mauna Loa Repeater

- Mauna Loa Repeater rescue efforts were supported during the year-end Mauna Loa eruption. On-site repeater equipment rescue by HIEMA in anticipation of total loss.

- Hilo Union Elementary School Demonstration

- May, 2023 Ham Radio demonstration on Science Day at the Hilo Union Elementary School. Successful association with the Hawaii Science and Technology Museum. Repeat planned for September, 2023.

- ARES Relationship and Update:

- Exercise Opportunities

- Makani Pahili Exercise participation

- Simulated Emergency Test October 7 2023

- Support ARES with the SET exercise. First time

formally

- working with HI-EMA and other Emergency

Management

agencies across the state.

Public Service Communications

- Continued efforts to engage and collaborate with the Amateur Radio community, other clubs and EMCOMM groups consistent with NIMS and ICS recognized protocols and operational capabilities.
- Presentation of the amateur radio community to county and state agencies, NGOs, and the general public in a positive light.
- Pursue activities and agreements that lead to regular collaboration in training exercises and resource sharing agreements with county and state government and served agencies.

- Activities, Information Update:

- ARES/Civil Defense Monthly Hawaii Siren test net
- HCCDA Siren Net: (Initiative led by ARES DEC, KH6RDO with the support and assistance from KH7LM, local All star Sysops, and many BIARC stations.)
- ARES continues to offer to prepare amateur radio operators to assist the Red Cross in emergency communications.
- Tony Kitchen WH6DVI as BIARC Treasurer and
- ARES ASSISTANT SECTION MANAGER, ASC
- AFFILIATED CLUB COORDINATOR
- Upcoming testing on 40 meters. Planning frequency usage for communication exercises and any events or disasters. This band is usually congested at Grey line and at night. We will mainly be concerned with the mixed-mode portion between 7.075 and 7.100, but further testing encompasses the whole band. In conjunction with Irene, NH7PE who runs an ARES net on 7.088 LSB at 6:30 pm HST on Wednesdays, we will hold a mixed-mode voice and digital Winlink net on 7.084 USB at the same time. Statewide operators will test if two side-by-side frequencies (4khz apart) can operate and not cause interference.

HVOAD Monthly Mauna Kea Repeater test net

- The monthly test net continues on the first Saturday of each month on the Maunakea repeater, from 12 Noon to 1 PM. All

- Makani Pahili Exercise

- Statewide Exercise participation

- Winlink Mapping Training

- BIARC and the PSCC have 4 of 16 participants undertaking training.

- Hamakua Simplex Net

- This simplex net continues to operate weekly on Monday mornings starting at 10:30 HST. It operates on 146.40 and originates on the north side of the island.

- ARRL NTS – National Traffic System

- 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 David Miller, KH6CZ (davroymill@gmail.com) for more information.

- Many thanks to Tony Kitchen, WH6DVI, for contribution of information to this report.

- PSCC Chair David Miller KH6CZ

Operating Activities

- A Field Day location and alternate have been set. Kuhio Kalaniana'ole Park as primary or Reed's Bay in Hilo as alternate. Plan to have two activities on Field day. The first will be a foxhunt and the second will be a demonstration of a relatively easy way to set-up an antenna for portable operations such as Parks On The air, Summits On The Air, etc. There will be food and drinks available, feel free to bring any food or drinks you like. There will be upcoming quarterly workshops where members can bring in their own equipment to work on and professional tools will be available (courtesy of William.) There will also be learning of electronics and other tech projects. There are plans for future foxhunts encompassing Puna or Hilo, possibly a moving foxhunt. Also, there are a couple of upcoming races where we can offer volunteer radio operations assistance to the Volcano and Kau coffee runs. The Kau Coffee Run will be on September 23rd starting at 6:00 am. to 3 pm. at the latest.

If [interested](https://www.radioid.net/register) you need to have DMR numbers which you can get at <https://www.radioid.net/register>

- If you have a DMR radio that would be great, if not Blake (call sign KH7MS, email: blakestene@gmail.com) will have some extra DMR radios but he needs your radio ID's to [program in](#) ahead of time. If you do not have a DMR radio, bring an analog radio if possible. All ham radio volunteers will meet at the Kau Coffee Mill at 5:30 am.

- The Volcano 'Ohia Lehua run will be on July 29, 2023 at 6:00. Operators need to be at the NCS tent at 6:15 am for a briefing before going to assigned stations. The race ends at 11:00 am. but stations will be relieved as the last runners pass their locations. Volunteers should contact Doug Wilson by email (douscelle@aol.com) so he can put together the roster and get some specific information such as maps, etc. out to them prior to the race and Doug will need everyone's shirt size ahead of time.

Programs and Digital Systems

- The WSPR station at the Mauna Loa Tower site was one of the top stations last year with a 99% up time rate for a year until two weeks before the May meeting when it was reported down. Gary, Jim and Joe visited the site and found out there was no power going out to the cabinet but there was power inside the building. The culprit was a non-working 12v to 5v converter which was powered by USB. On the next trip we will replace hardware in box and repair the device. The Digital Committee is working with the Repeater Committee planning for installation of microwave linking at both the [Kulani](#) Cone tower site and the [Pepeekeo](#) site. This will allow an AREDN mesh network to cover most of Hilo and parts of Puna. This will enable sharing of resources such as the Flight Aware airplane tracking system, a Kiwi SDR capable of receiving signals across the HF band, a local public safety scanner, a VHF scanner and possibly a balloon tracker. This will allow us to provide services during an internet outage. An AREDN mesh network can use VOIP (PBX) phones. There are plans for a Hawaii Island PBX [in the near future](#) which will provide redundancy



to have at all. Plans are to replace that antenna with a colinear antenna (which will be donated to the club) mounted a little higher up which will result in increased capture area. This is a short term solution, we are trying to work out permission [for better](#) antenna mounting placement. The Repeater Committee is reviewing an additional option to use a signal-to-noise ratio voting comparator. This will allow for multiple receivers and help repeaters to "hear" better. It's an ongoing technical and complex process which is under review and requires some education.

- Other projects include E-power upgrades to the [Pepeekeo](#) and Mauna Loa sites. Currently when the power goes down, the repeater goes down. The club is about to receive two public safety [grade](#), industrial uninterruptible power supplies (UPS) with external battery shelves which could give us up to a day of coverage. The Mauna Loa site experiences power outages every so often. Working with digital systems the plan is to install a 24 volt solar system with solar panels, etc., to give us an indefinite amount of time during an outage. This repeater has relatively good coverage of Hilo and Puna, except North Hilo or Upper Puna.
- Hawaii Fire Department [Auxcomm](#) team
There was an outage caused by the Mauna Loa eruption which took down public safety communications on Saddle Road for a few agencies. They didn't have the resources at [hand](#) to provide restoration of coverage so the [Auxcomm](#) team borrowed some equipment from us (repeaters, etc.) and the expertise to set it up to cover the [Pohakuloa](#) Training Area for Fire Station 50, the [Pohakuloa](#) Police Department, etc. They're still using it [at the moment](#).
- When we rebuild the Mauna Loa site the committee will look at using receiver multi-couplers and transmitter combining to run multiple VHF repeaters possibly with other types of stations off the top of tower antenna we were gifted. That would allow a dedicated C4FM machine, dedicated DMR machine, etc. and possibly a Vara digipeater. The Mauna Loa site [is in need of](#) a network connection. The tower is not [climbable](#) so we are looking at options.
- We are working to build out the C4FM repeater network. One is installed at [Kulani](#) Cone and one is planned for Hilo to get in-building

and share connections. If you're on one Internet service and it goes down, you can get connectivity to another. We are currently looking for [Starlink](#) operators who would allow us to use a very small amount of their bandwidth for the AREDN mesh network which will provide an additional internet connection and would not be a drain on the internet link. [Microsip](#) is free VoIP to VoIP PC software you can use. This digital network set-up [opens up](#) a lot of opportunities. Working on getting hardware to do it via RF, to have multiple points of redundancy. Priority is [Pepeekeo](#) and AREDN mesh and working with repeater committee for other linking. After that, we need to decide what other things we want to put up at other sites such as a Vara station for [digipeating](#), SSTV, airplane tracking, etc. Hardware needs to be installed before any decisions can be made. We are open to suggestions at any time.

Repeater Committee

- We experienced delays to get microwave radios up between the [Kulani](#) Cone and [Pepeekeo](#) repeaters. We had trouble sourcing a custom clamp to attach to the [Kulani](#) Cone tower leg. It has now been ordered and should be on its way soon. Since both sites are public safety sites our equipment [has to](#) be up to those standards. The clamp set is critical for microwave linking between [Kulani](#) and [Pepeekeo](#). We plan to also have RF linking done with data over our own private network. We need to install the clamp with a standoff on the [Kulani](#) Cone tower. The same [has to](#) be done at the [Pepeekeo](#) site and the microwave dishes have to be aligned between both. Then we can install linking controllers, a computer and radio to connect with the repeaters. Once that is done the repeaters will be linked which [opens up](#) other possibilities such as an AREDN mesh gateway in conjunction with Digital Systems at [Pepeekeo](#) which can talk to a future [Kulani](#) mesh gateway so we can connect mesh islands in Hilo and Puna into mesh islands covering upper Puna and grow out from there. Additional future repeater linking is planned to link the lower East Rift Zone in lower Puna, expand to Kau and the [Hamakua](#) Coast as we try to wrap around the island.
- Receive performance at [Kulani](#) Cone site has not been as good as it could be due to our temporary antenna placement, which we are lucky

coverage with HT all over Hilo. There are several other repeaters to deploy to expand the C4FM network out. Waiting on the [Orchidland](#) CERT team to install their antenna so Jim Huntley can install the repeater for them. The club is looking to broaden out and share resources with other clubs.

Education and Outreach

[Biarc](#) lending library- Leslie Hittner

- The lending library is stored in a plastic tote with drying material to keep the books dry. Doug Wilson has built a folding table/cart for transporting and displaying the library at in-person events. No sooner did the committee get everything ready, [then](#) the COVID-19 shutdown came into effect. This spring, for the very first time, our lending library has been at in-person meetings at Kamana Senior Center. Unfortunately, we have not yet secured permission to leave the library at the center and it is being transported to and from the meeting each month.

[Biarc](#) trifold publicity flyer

- Leslie, K0BAD, completed a trifold publicity flyer that will be passed out to non-hams at activities open to the [general public](#). The flyer was passed out to students at Hilo Union Elementary on Friday, May 19. It will also be distributed by Doug Wilson to students who have passed their first amateur radio license examination.

[Biarc](#) Website- Tony Kitchen

- The [Biarc](#) website has finally been moved to a new hosting company. We selected a hosting company called [DreamHost](#), LLC. The hosting cost was \$35.40 for services to May 2024. This service includes an SSL digital certificate. After I install the SSL certificate we will be able to use the secure address of <https://biarc.net>, instead of <http://biarc.net>. The previous site design is still in place. We lost access to our previous hosting company (HostGator.) It was necessary to restore the website content from a previously made backup which was about one month old.

Big Island Amateur Radio Club

Digital Systems Annual report. May 21, 2023

Outlook for 2023

The first priority is to get the equipment installed and operational. After that we will work with the program committee to do some orientation/training on using it. Currently our WSPR station is down due to a failed buck converter, that takes 12 volts and drops it down to 5 volts, for the USB powered WSPR controller. If anyone is interested in a chance to visit the Mauna Loa site when we have the work party, Let me know. We are always open to suggestions on club projects. You the members, need to help steer the club so that it stays of interest to you.

Jim Huntley
Digital Committee Chair



2022 In Review

- ▷ Monitor and maintain the clubs WSPR beacon on MaunaLoa.
- ▷ Worked with the repeater committee on planning for installation of Microwave linking of Kulani and Pepeekeo repeaters.
- ▷ Sourced and acquired radio and antenna for an ARDEN mesh node with a Sector antenna that will be able to cover Hilo and parts of Puna. The intent is to use this to be able to link smaller mesh islands. Also allow people to practice aiming antennas and connecting to nodes.

2022 In Review (cont.)

- ▷ We have discussed what possible services we can offer the ham community once we get the equipment installed and functional. With the ARDEN mesh network people can share resources. One example is WH6EPS hosts Flight Aware for track airplanes. Anyone on the mesh network can login and see what is in the air in most of Hawaii. My APRS station was available for anyone to log into and send APRS messages. You can call other hams using IP phones. There are so many possibilities.

In Summary, 2022 was more about throwing around ideas than actual building out infrastructure.



From previous page

- I am currently updating the Biarc membership roster, committees and officers pages to get things back to where they need to be for 2024. I will look into the possibility of updating our website to reflect a more modern style and work better with smartphones in the near future. The current site design is efficient. Most of the content, except for the newsletters is basic HTML. Therefore the files are small and load quickly, even over slow internet connections. A more modern site design will generally increase file sizes, but I do not anticipate that people using broad band connections would notice much of a difference in webpage load time. We have plenty of storage space to host additional content on our website. I am also now able to add additional users to post updates and new content. If any Biarc member with basic website publishing skills (HTML) wishes to help out, please contact Tony Kitchen via email at tonykitchen808@gmail.com.

Biarc classes and testing sessions-Doug Wilson

- We just finished a class on March 29, 2023. We had 31 people sign up and only 14 finished the course. I have a list of people interested in the next class, which I haven't scheduled yet. I'm thinking sometime in the fall. If you know of anyone that is interested, please let me know and I will put them on the list.

Biarc newsletter and other publicity opportunities- Leigh Critchlow

- The Biarc newsletter now has a more formal name. The Big Island Hamgram.
- 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 guidelines. If a committee chair or some other club official wishes to have a news/information release written for distribution to the media.
- Plan at least 4 to 5 weeks in advance.
- Provide Leigh with all of the important information needed to write the news release.

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

New Business

Gary (wh6eps) motioned and Les (k0bad) seconded to direct the board to implement a remote access option for the Kulani Cone repeater for members who are in the hospital, convalescing or on vacation. This will most likely be accomplished through a smartphone app.

There being no further business William closed the meeting at 1:43 P.M.

Respectfully Submitted,

Joseph Rosenbaum, Secretary



This graduation cap's decorations include ham call sign

It's graduation season for high schools across the country.

This rite of passage is often accompanied by the chance for graduates to decorate their caps for the festivities, and one teenage ham in Oklahoma chose to decorate hers with her call sign.

Cassie Whetstone, KI5DBQ, is a graduate in the Mangum High School class of 2023. She was also a part of the school's Tiger Radio Club, KF5CRF, through which she earned her license.

Her graduation cap was

decorated with monarch butterflies and a bright floral design on each corner. Sparkly rhinestones lined the cap's edges, and "73's KI5DBQ CLEAR!" was printed down the center.

See a bigger photo of the cap and leave your well wishes for Cassie on the ARRL Facebook page.

Cassie Whetstone, KI5DBQ, poses with her cap and diploma from Mangum High School in Oklahoma.

Photo courtesy of Cassie Whetstone, KI5DBQ

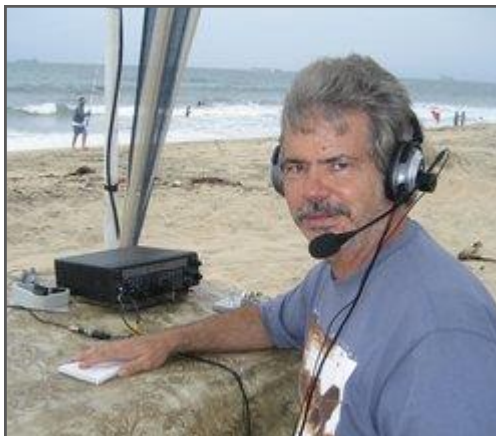


Charles 'Chip' Margelli, K7JA, SK

A longtime fixture of amateur radio, Charles "Chip" Margelli, K7JA, has passed away after a brief illness.

Margelli was well known in the amateur radio industry. His friendly approach and love of customer service marked his professional career. He served for 29 years at Yaesu Musen and later worked for Heil Sound Communications Inc., CQ Communications Inc., InnovAntennas and Ham Radio Outlet.

"Chip was a great contester," said ARRL Director of Operations Bob Naumann, W5OV. Margelli held first place in many national radio-sport contests. "He never had anything bad to say about anyone. He



Charles "Chip" Margelli, K7JA, has passed away after a brief illness.

was a fixture at all [of] the big events and was just a great guy to be around," said Naumann.

His love of people took him around the world on DXpeditions and missions of goodwill related to amateur radio. His operating prowess spanned modes, cultures, and languages.

"Chip was a real DXer who could be eating an ice cream sandwich while sending CW at 50 WPM, all while watching his smartphone for DX spots and carrying on a conversation with a visiting ham," said instructor Gordon West, WB6NOA.

