

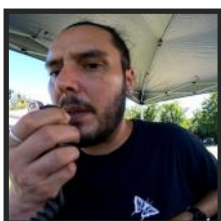
November 2024



THE BIG ISLAND HAMGRAM

The newsletter of the Big Island Amateur Radio Club

THE PRESIDENT'S CORNER



Thomas Avila,
KH6GG

Do your own PACE

This month's presidential election brings up the question of your own personal PACE plan.

Have a Primary, Alternate, Contingency, and Emergency option of communication. Not just for yourself but any family member or neighbor you might need to get in touch with.

Next month I'll have a guide to my own personal plan. I encourage everyone to please look up S2 Underground on YouTube: Check out his Ghostnet series. <https://github.com/s2underground/GhostNet>

I will add a link to the pdf he created to get on Ghostnet for coverage on nets he has set in place. The link will be added to our Discord channel for further reference.

It helps show the nationwide plan he has set in place to help relay communications during disasters.

Thank you and I hope everyone has a safe holiday season. I look forward to seeing everyone at the next meeting.

73, Thomas Avila
KH6GG (updated call from WH6GWL)

Club election, holiday potluck on tap for BIARC

Another year is coming to a close. It is time for BIARC members to select our new directors.

Please join us on Sunday, November 10th at 14:00 HST for our next club meeting, at the Kamana Senior Center <https://www.google.com/maps/place/Kamana+Senior+Center/@19.7079868,-155.0794149,15z/data=!4m6!3m5!1s0x79524b441ecf2bbb:0x55dfbd5d17bdfc6e!8m2!3d19.7079868!4d-155.0794149!16s%2Fq%2F1tfm1nrn?entry=ttu> or, via video conference at: <https://meet.google.com/ooq-mmne-ync>

Continued on Page 3



Steve Johnston

A ham for more than four decades, with a multifaceted career as a broadcast engineer, Steve Johnston, WD8DAS, was the online guest speaker at the BIARC October gathering in Hilo.

WWVH: The timekeeper's timekeeper

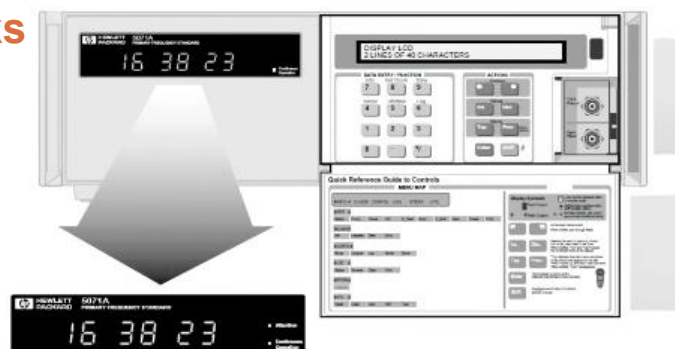
Steve Johnston, WD8DAS, the engineer-in-charge at WWVH on Kauai, treated BIARC members to a fun and interactive online presentation about the station at our October 13 monthly gathering in Hilo. WWVH is the U.S. National Institute of

Standards and Technology's time and frequency station for Hawaii, Alaska and the Pacific.

It's an important facility with roles vital to the functioning of the world as we know it.

Atomic clocks

The three clocks are automatically checked and steered by reference to the NIST National Time Scale based in Colorado. This in turn is coordinated internationally (UTC) for worldwide standardization.



WWVH is a service of the National Institute of Standards and Technology

The National Institute of Standards and Technology (NIST) was founded in 1901 and is part of the U.S. Department of Commerce. NIST is one of the nation's oldest physical science laboratories.

Mission

To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

Vision

NIST will be the world's leader in creating critical measurement solutions and promoting equitable standards. Our efforts stimulate innovation, foster industrial competitiveness, and improve the quality of life.

In addition to WWVH on Kauai, NIST has facilities in Gaithersburg, Maryland, as well as in Boulder and Fort Collins, Colorado.

How I survived a lightning bolt

By Hank Kaul, KH6HAK

*Monday morning, October 28, 2024.
A thunderstorm comes ashore at
Hawaiian Beaches.*

At 0523 am a lightning bolt hits my hex beam antenna mast at the rear of the house. I know it was a direct hit, as the flash and explosion were simultaneous. It was like being next to a Howitzer cannon with no ear protection.

I sat bolt upright in bed, and down the hall I caught a glimpse of a shower of sparks from the radio room. I was not going to go near the radios with the storm going on, so I laid back down and wondered if my radios had survived... and how I would afford new ones.

When I moved to this house in 2016 I planned my ham radio station from the ground up, using every good engineering practice I learned in 40 years of being a broadcast engineer. The house is built on a concrete slab atop a few feet of gravel. The rest of the lot is natural pahoehoe lava flow of 1840, with some beautiful ropy areas I saved for yard art. The lava plate was not busted up when the house was built.

So how do you make a good lightning ground on a hard insular plate? Look up 'Ufer Ground' on Wikipedia for a full description, but I was determined to do the best I could.

I used #4 copper stranded wire and started at the copper water pipe feed to the house. I laid about 120 feet of wire, dug in an inch or two, right next to the edge of the concrete slab and went 3/4 of the way around the house. Then at every corner, every wet downspout area, at the shack entrance, and at the base of every pipe mast for antennas, I pounded in a ground rod thru the gravel. These only went down 2 to 4 feet before hitting solid lava that I could not pound the rod thru. But there are nine of these short rods total. Also know that a bare horizontal wire makes a good ground also, somewhat enhanced by the Ufer effect of the concrete shedding ions for years.

Each of three antenna mast pipes mounted on the concrete apron has a ground wire to the loop wire, and its own ground rod at the pipe.

The idea is that you want a lightning strike to find a straight path down to ground.

The same idea applies to every coax and control wire that comes down the mast. Each comes down to a ground plate at the bottom, and there are lightning arrestors at the base plate.

From the base plate, the wires are wound several turns in a loop before going back UP the side of the house to the eaves level. The loops act as a 'lightning retard coil', providing just enough inductance to stop a fast pulse of lightning and ensure it



gets grounded out at the arrestors at the bottom.

Lightning will also NOT turn around and go back UP the wires at the house. The physics has to do with space-charge dynamics of a lightning pulse. Going up would put the current flow into a higher voltage area above, when it is seeking a lower voltage below at ground. So my now-elevated coax and control wires come under the eaves back to the shack, where they come down to the grounded entrance plate to the shack. The elevated wires will not be carrying the big lightning bolt into the shack, but they will have EMF induced voltages from all the nearby fields. So at the entrance plate every coax and every control wire again goes thru a lightning arrestor to ground out the remaining induced high voltages as they come into the shack.

My three HF antennas come into a rotary antenna selector to the HF radio. There is also a dummy load position, and when I am not actively using the radio, it is switched into the dummy load. This leaves the three HF antennas open circuit at the rotary switch. For the VHF/UHF satellite radio I have several selectors for beams or QFH satellite receive, but no disconnects. This radio remains connected to at least one antenna at all times. But these are small antennas, and as luck would have it they are below the 'umbrella' protection of the hex beam above and next to them.

So at first light of dawn, with the rain stopped, I made the dreaded walk into the radio room, bracing myself for the worst. Powered up the system, and the VHF rig lights up and reads out normally. I tripped the repeater and asked for a radio check, and much to my relief Jim, WH6EMN, comes back to tell me I have a good signal! Thank You!

I looked at my HF antenna switch and was grateful I had indeed left in in the dummy load position. I powered up the rig and it looked normal. Selected the Buckmaster dipole and the HF noise came in normally on the waterfall, with several other signals visible.

I heaved a big sigh of relief.

I had just survived a direct lightning stroke!

All the theory and 'best practices' I had used in constructing this radio station had been tested to the ultimate limits and it all worked like I hoped it would.

YEAR-END CLUB ACTIVITIES

Continued from Page 1

At the November 10th semi annual membership meeting, officers and committee chairs present reports on the state of the club.*

- *Full members will elect 4 directors, one to fill the position of K0BAD. who is resigning, and 3 to fill the director position terms that are expiring on December 31st.*

- *All full members are eligible to run in this election. Anyone who wishes to nominate themselves, or

another full member may send email to biarc.board@gmail.com

- *Please make sure that the person you are nominating agrees to run before nominating them.*

- *If the slate of nominees is not contested members may move to accept the slate of nominees as presented, and no election is needed.*

- *2025 Officers will be appointed by the Executive Board in 2025.*

- *Members may also make motions,

which if seconded and supported by the majority, will serve as a directive to the BIARC Executive Board.*

- *We welcome your discussion and ideas as to the future direction of BIARC.*

Note: Our December 2024 Club Activity will be our holiday potluck dinner. 73,

Tony Kitchen, WH6DVI
BIARC Nominations Committee
<https://biarc.net>

Discord a new tool; BIARC Listserve, Facebook still active

The BIARC Listserve isn't going away, and our Discord server isn't replacing it.

The original Discord experiment highlighted how much better Discord is suited for longer, technical discussions.

Because of that, BIARC decided to use it to augment our existing tools, such as this Listserve and our Facebook page, with a permanent Discord server. The listserve and social media are still better for general announcements and will remain in place for those and other communications.

This was discussed at the BIARC meeting yesterday (Sunday, October 13).

All in attendance agreed that all of these tools should be limited to factual and respectful discussion of matters specifically related to amateur radio.

I suspect that at the November BIARC Annual Business Meeting, members may seek to formalize this guidance.

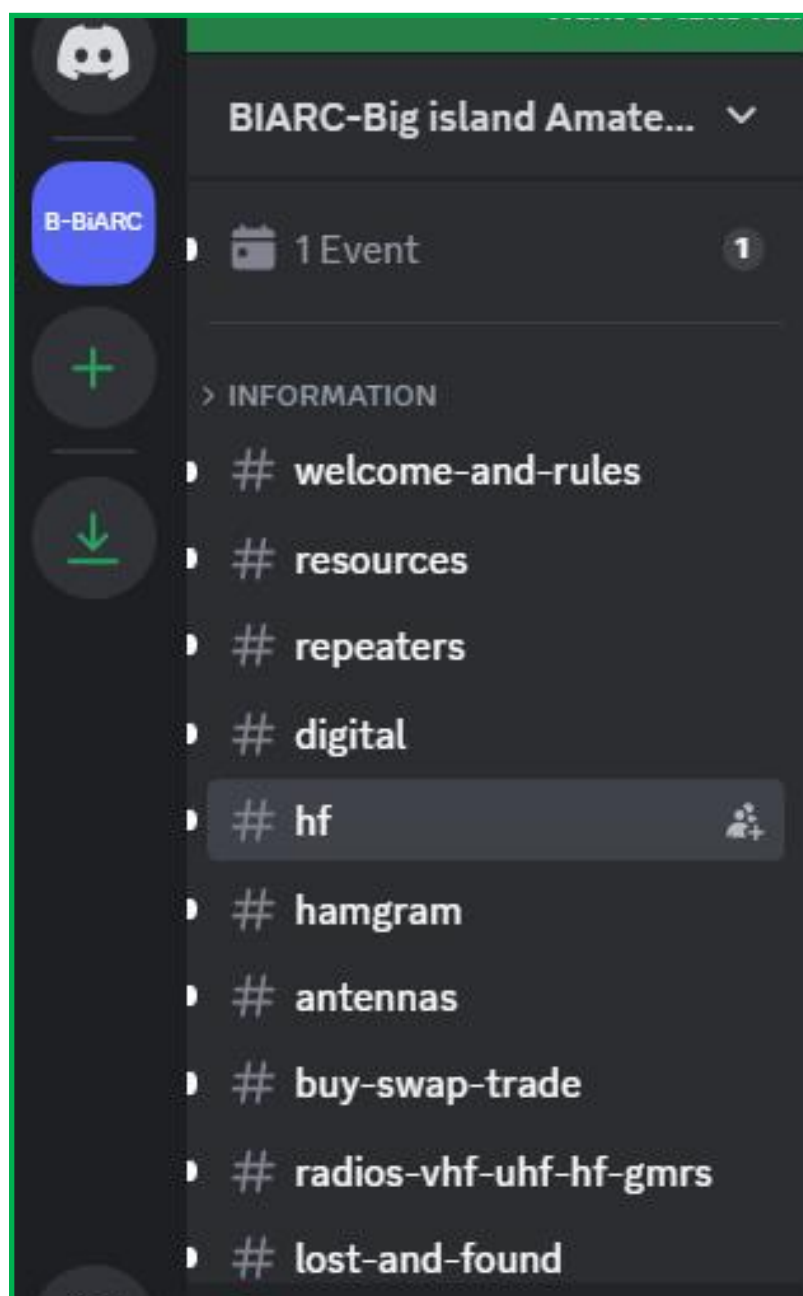
A reminder to everyone: ensuring you get a say is a good reason to attend the meetings!

P.S. Quite a few people yesterday asked for the link to the discord to be sent out again.

Here it is: <https://discord.com/invite/ReeBwXut>



*William - NH6ET
(written and circulated
on the BIARC Listserve
Monday, October 14)*





CQ World Wide DX Contest, Hilo-style



A good time was had by all as BIARC participated in the SSB segment of the CQ World Wide DX Contest on Saturday, October 26 at a very radioactive Wailoa State Park wedding pavilion in Hilo.

Photos by WH6JOE



Monthly Siren Report for Nov. 1, 2024

Location	Observer	Mode	Status	Notes
NOT WORKING				
Ainaloa (HA910)	WH6DVI	Mauna Kea	Not Working	
HOVE Shopping Center #2 (HA806)	KH6FA	Allstar	Not Working	
HOVE, #1 Leilani (HA805)	KH6FA	Allstar	Not Working	
Kehana Beach (HA916)	KH6AQ	Text	Not Working	
Kolekole (HA112)	KH6RDO	Allstar	Not Working	rotates but no sound
WORKING				
Ainako Park (HA117)	WH6FSA	Allstar	Working	
Banyan / Kam (HA104)	KH6ATU	Allstar	Working	
Carvalho Park (HA114)	NH6WT	Allstar	Working	
Cooper Center Volcano (HA936)	WH6GRW	Mauna Kea	Working	
Downtown Federal Bldg (HA107)	WH6FDE	Email	Working	
Hakalau (HA113)	WH6ECX	Allstar	Working	
Hawaiian Beaches Park #1 (HA907)	KH7LM	Mauna Kea	Working	
Honoapu (HA802)	WH6HC	Allstar	Working	
Honumu (HA111)	KH6RDO	Allstar	Working	
HOVE Reef Blvd #3 (HA809)	WH6FC	Allstar	Working	
HPP #3 6th & Makuu (HA913)	NH6OV	Allstar	Working	
HPP #1 Paradise / Ala Kai (HA925)	KH6CZ	Mauna Kea	Working	
Kaimu Beach Kalapana (HA908)	KH6PGA	Allstar	Working	
Kamehameha Park Kohala (HA503)	WH7WZ	Text	Working	
Kawaihae Harbor (HA407)	WH6EHJ	Mauna Kea	Working	
Lanikaula (HA106)	NH7GX	Allstar	Working	
Laupahoehoe Lookout (HA201)	WH6FSE	Allstar	Working	
Laupahoehoe Point (HA202)	WH6FSI	Allstar	Working	
Leleiwi (HA101)	KI6HBZ	Allstar	Working	
Naalehu (HA801)	WH6HC	Allstar	Working	
NELHA Kona (HA611)	WH6GTD	Text	Working	
Old Kona Airport (HA609)	KH7MS	Allstar	Working	
Ookala (HA304)	WH6GDC	Text	Working	
Paauilo (HA301)	AH6JA	Email	Working	
Pahala (HA804)	WH7BR	Allstar	Working	
Puako General Store #1 (HA405)	WH6EHJ	Mauna Kea	Working	
Punaluu /.Sea Mountain (HA803)	AJ0T	Allstar	Working	
State Building (HA116)	WH6FDE	Email	Working	
Waiaka Bridge Kamuela (HA402)	WH6EHJ	Allstar	Working	
Waiakea Uka Gym (HA124)	WH6GZZ	Mauna Kea	Working	
Waikaumalo Park Ninole (HA123)	WH6FIQ	Allstar	Working	
Waimea Park Kamuela (HA401)	WH6EHJ	Mauna Kea	Working	
Waa Waa (HA937)	NH7PE	Text	Working	



Outreach continues into schools, community

The Big Island Amateur Radio Club continued its outreach to the Elementary Schools throughout Pu-na during November with nine schools reached through the Education & Outreach committee this year.

Our objective is to introduce students, parents and teachers to the world of ham radio and to support further engagement through BIARC. Names are collected from those interested in obtaining ham training through Doug Wilson, KH7DQ, or for more information.

Participation of the E&OC Committee includes the following volunteers: Fred Fischer WH6HAA, David Miller KH6CZ, Joe Rosenbaum WH6JOE, Jim Tatar WH6EMN, Mark Watanabe WH6FSA, and Les Hittner K0BAD.

We rely on the balance of the Club's membership to support outreach activity on the Kulani repeater. Events are productive and enjoyable, and we have had very good participation from both the attendees and BIARC members.

New ideas are being explored continually to help us engage more effectively and suggestions are welcome.

The E&OC is well equipped with access to the club's ft991a transceiver, VHF/UHF radios and FRS handhelds contributed by Jim. Our supply of BIARC tri-fold flyers is maintained by Les while Tony, WH6DVI, supplies our ARRL/ARES material.

While prepared for most situations we are always looking for more support on the repeater side and plan to schedule half-hour segments for net operators who want to support our on-air activity.

Our outreach considers the requirements of the East Hawaii schools and groups. The school program has been oriented toward the elementary school community in conjunction with the Hawaii Museum of Technology and Science.

However, during the summer, we also engaged with the YMCA in its Summer Activity program and this past month we were present at the Mountain View Elementary school through the Noir Lab and Communications, Education and Engagement, Gemini North. Our usual



Note that the BIARC banner is in place at events, as seen in this picture of Fred, WH6HAA, and Joe, WH6JOE, in action at the Mountain View school.

KH6CZ photo

IEEE Engagement with BIARC

In an exciting new development, the Hawaii Island subsection of the IEEE has indicated that BIARC's efforts need to be better supported on Hawaii island through the BIARC E&OC. There will be more information forthcoming on this development very shortly. Stay tuned.

BIARC cadre is in action at any given time and location.

The Committee has renewed engagement with the Museum of Science and Technology for 2025 and plans to repeat the YMCA Summer Activity program. Repeat of the Mountain View event is also anticipated. A schedule for the balance of 2024 into 2025 is included in our update.

Recent E&OC 2024 Activity

July 16 — YMCA Summer Program event, Hilo YMCA.

August 20 Keaau School Science Fair with Hawaii Science and Technology Museum.

September 11 — EB De Silva School

October 15 — Mountain View School

Future E&OC 2024/2025 Planned Activity

Waiakeawaena Elementary - Friday, November 15th 5:00-7:00pm

Waiakea Elementary - Wednesday, December 11th 5:00-7:00pm

Kaumana Elementary - Wednesday, February 5th 5:00-6:30pm

Hilo Union Elementary - Friday, March 7th 9:30-11:30am

Many Thanks to Leigh, Linda, Paul, William, Shawn, and many other BIARC members who have helped and been involved with this effort.

73,
David Miller
BIARC E&OC Chair

BIARC Education & Outreach Committee Report October 2024

September 2024 E&OC Activity

September 3

Warning Siren Test Net

September 11

Science Night at the EB DeSilva Elementary School

Joe WH6JOE, Fred WH6HAA, Mark WH6FSZ and David KH6CZ, onsite

September 29

FCC VE Testing at Kamana Center per Doug Wilson

October 3

Warning Siren Test Net

Planned

October 15

Mountain View -

Wednesday, October 15th

5:30-7:00pm

2024-2025 Future Considerations

Outreach to East
Hawaii schools for
event participation
with senior students

Scheduled School Outreach Events

Waiakeawaena
Elementary - Friday,
November 15th
5:00-7:00pm

Waiakea Elementary - Wednesday, December 11th 5:00-7:00pm
Kaumana Elementary - Wednesday, February 5th 5:00-6:30pm
Hilo Union Elementary - Friday, March 7th 9:30-11:30am



WH6JOE photo

*Fred, WH6HAA, helps keiki get on the air at the
community outreach activity at Mountain View
Elementary School on October 15.*

*October 12, 2024
David Miller, Chair,
BIARC Education and Outreach Committee*

**Draft
Minutes**

**BIARC Executive Board Regular Meeting
October 13, 2024
Kamana Senior Center**

The meeting was called to order at 12:01 pm by Board President Thomas Avila. A quorum of 6 board members were present.

Attendance:

Board members: Thomas Avila, Les Hittner, Tony Kitchen, William Polhemus, David Miller and Joseph Rosenbaum

Secretary's Report and Minutes:

William moved and Les seconded to approve the September 2024 Secretary's report. Motion passed.

Treasurer's Report:

See attached. A total of 76 members were reported. Les moved and David seconded to approve the Treasurer's report, subject to audit. Motion passed.

Committee reports:

Digital systems:

In planning stages for cloud and site based infrastructure. Cloud based infrastructure has started with the experimentation of AllStar link 3 nodes in the cloud. These are linking hubs for various purposes which will serve several additional planned experiments. Still planning for the Peepekeo based server which would host virtual machines for various applications, such as an igate for APRS, CMS for packet and Winlink, Vara, a weather station, etc. The Auxcomm team has been discussing AREDN Mesh and other digital systems with the Fire Department. There is a potential for growth and collaboration borne out of these conversations.

Education and Outreach:

See report. There is a need for more operators to get on the Kulani Cone repeater (146.760) and talk to the students at our outreach events. The next outreach event will be at Waiakeawaena Elementary school on Friday, November 15th 5:00-7:00 pm. Discussion was held on the Big Island monthly siren net as relates to Civil Defense. There were recently two successful outreach events. One at EB De Silva Elementary and one at Mountain View Elementary school. There are a few more outreach events coming up in the next few months. See the October 2024 Biarc newsletter, the Hamgram at <https://www.biarc.net/newsletters.shtml> for more details. Discussion was held on the IEEE(<https://www.ieee.org/>), the professional home for the engineering and technical community worldwide. The Hawaii Island subsection of the IEEE has determined that Biarc's efforts need to be better supported on Hawaii island. This subsection is formed with a mission for education and outreach support. Initially they are offering to support Biarc's efforts in education and outreach. This subsection also asks for the Biarc Education and Outreach committee to help establish best practices. William moved and Les seconded that the offer from the IEEE Hawaii island subsection be referred to the Education and Outreach committee. Motion passed.

Operating Activities:

On October 26th, Biarc held an outing at the Wailoa State Park to participate in the CQWW SSB contest(<https://cqww.com/>.) There was a good turnout, contacts were made and everybody had a good time.

Programs:

Today's program will be on radio station WWVH with Steve Johnston, their chief engineer. Discussion was held on a future build project making a Rigrunner style DC distribution block.

Public Service Communications:

VOAD(<https://www.nvoad.org/>) Voluntary Organizations Active in Disaster has authorized Tony to pursue the plan to move the old VOAD Mauna Kea repeater system to the Hawaii Pacific Academy site. This site will provide backup power. A linking solution has been arranged using a Raspberry Pi with a backhaul to the internet. William proposed that we offer to link the Hawaii Pacific Academy repeater with the Biarc Mauna Ioa repeater to expand coverage.

Voice Repeaters:

Working with the VOAD committee to help support the repeater system location to the Hawaii Pacific Academy. Development of gateway is underway. The North Hawaii Community Hospital amateur radio club's repeater has stopped working on the receive side. William will deploy Biarc's spare DR1X repeater to that site located in the Waimea area. Discussion was held about supporting VOAD and the Hawaii Pacific Academy regarding their repeater system. Tony and Les offered one repeater each to Biarc.

Old Business:

The club battery board has not been received yet. Thomas asked for permission to repair the battery. The Operating Activities chairperson, Joseph Rosenbaum approved the repair. Tony and William offered parts and assistance.

There has been no additional information about the anonymous donation.

New Business:

There are four vacancies on the executive board. Les (K0BAD) is retiring from the board after years of outstanding service. There are three incumbents and one active member running for the board. The three incumbents are David(KH6CZ), Thomas(KH6GG) and Joe(WH6JOE.) Shawn(WH6GXZ) is running as a first time candidate. We have a full slate of candidates for the board positions.

William moved and David seconded to support the County Communications Working Group resolution proposed by Councilwoman Evans. Discussion was held to modify the resolution, with a focus on interactions between non-profits. The supporting effort motion passed. William moved and David seconded to support Biarc's effort regarding Councilwoman's Evans resolution. Discussion was held on the working group and the resolution language.

William moved and David seconded to engage with Big Island Now for an interview. Motion passed.

The Biarc Repeater Committee has collaborated with different groups and we are a member of VOAD. William proposed to offer a thirty foot tower that Biarc owns to VOAD, if they need it for the repeater site at Hawaii Pacific Academy. William moved and Tony seconded to offer the tower, other hardware and the efforts of our repeater committee to VOAD for the HPA project. Motion passed.

The board decided to table the email motion to the next meeting. Thomas moved and Tony seconded to adjourn the meeting at 1:37 pm. Motion passed.

Next meetings:

The next meeting will be held on November 10, 2024 at the Kamauna Senior Center in Hilo. The Executive Board meeting will be at 12:00 pm and the membership meeting and elections will be at 2:00 pm.

*Respectfully submitted,
Joseph Rosenbaum,
Secretary*

BIARC Operating Statement

	<u>2024 Budget</u> <u>(Proposed)</u>	Actual*– As of <u>10/12/24</u>
Income:		
Dues	\$1,300.00	\$1,642.50
Repeater and general Donations	\$400.00	\$858.35
Humanitarian Donations	\$100.00	\$26.25
PayPal Convenience Fees	\$26.00	\$37.15
Donated Equipment Sold		\$210.00
Total Income	<u>\$1,826.00</u>	<u>\$2,774.25</u>

Disbursements:		
Club Liability Insurance	\$220.00	\$200.00
Club Equipment Insurance***	\$220.00	\$0.00
Equipment	\$400.00	\$0.00
Club Activities	\$400.00	\$174.47
P. O. Box Fee	\$280.00	\$282.00
Humanitarian Awards	\$100.00	\$0.00
VOAD Dues	\$25.00	\$25.00
Printing/Publicity	\$170.00	\$157.82
Office Supplies/Bank Fee/Misc.	\$40.00	\$3.50
Online Services	\$48.00	\$131.42
Paypal Transaction Fees**	\$13.00	\$31.97
Total Expenses	<u>\$1,916.00</u>	<u>\$1,006.18</u>

Net (Income - Expenses)	\$1,768.07
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Account Balances:	as of: 10/12/2024	
BOH checking Account		\$3,854.18
Namecheap Balance (Website)		\$1.00
Paypal Account Balance		\$1,564.13
Total		\$5,419.31

Fund Balances: (10/12/2024)	
Infrastructure fund	\$3,034.95
Humanitarian Fund	\$440.00
Emergency Reserves	\$1,000.00
General Fund	\$944.36
Total Funds	\$5,419.31

* Income figures show dues and donations received for the 2024 dues year.

** Budget estimate based on 20% Transactions via PayPal, with fees averaging 4.65%

BIARC— Donation Funds Summary

Fund Summary:

As of: 10/12/2024

<u>Year</u>	<u>BIARC Equipment Budget</u>	<u>Donations (Credit)</u>	<u>Equipment Purchases & Maintenance Costs</u>	<u>\$ Covered By Repeater Fund</u>	<u>Repeater Fund Balance</u>
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	\$1,595.00	\$1,548.28	\$948.28	\$1,578.69
2022	\$950.00	\$729.00	\$0.00		\$2,307.69
2023	\$950.00	\$455.75	\$2,626.92	\$586.84	\$2,176.60
2024		\$858.35	\$0.00		\$3,034.95

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

Humanitarian Fund:

<u>Year</u>	<u>\$ Donated</u>	<u>Amount Spent</u>	<u>Balance</u>
2022	\$395.00	\$140.00	\$255.00
2023	\$158.75	\$0.00	\$413.75
2024	\$26.25	\$0.00	\$440.00

Ham Anagram

THE MORSE CODE :
When you rearrange the
letters:
HERE COME DOTS

~ 2024 BIARC Roster ~

Executive Board officers and committee chairs

President

Thomas Avila, KH6GG

Vice President

Les Hittner, K0BAD

Secretary

Joseph Rosenbaum, WH6JOE

Treasurer

Tony Kitchen, WH6DVI

At-Large directors

Mark Watanabe, WH6FSA, and
David Miller, KH6CZ

KH6EJ station custodian

William Polhemus, NH6ET

Public Service/ Communications Committee

Chair Les Hittner, K0BAD

Operating Activities Committee

Chair Joseph Rosenbaum, WH6JOE

Education and

Outreach Committee

Chair David Miller, KH6CZ

Programs Committee

Chair Les Hittner, K0BAD

Digital Systems Committee

Chair Shawn Farley, WH6GXZ

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>