



March 2023

THE BIG ISLAND HAMGRAM

The newsletter of the Big Island Amateur Radio Club

THE PRESIDENT'S CORNER



Alan Okinaka
KH6ATU

So, what IS ham radio, anyway?

After earning my amateur radio licenses, the topic of ham radio often drops into casual conversations with friends and acquaintances. And, I am sure we all get asked the question, "What is ham radio?"

Most of my friends are not technically oriented and I have a habit of wanting to explain things well, so I focus on making sure I answer this question clearly.

They don't know or have an appreciation for radio frequencies, the ionosphere, antenna configurations, radio equipment features and functions, repeaters, and proper grounding. I am sure I would see glazed eyes and expressions of "Why did I ask?" if I attempted to touch on the technology of radio communications. They just want to know, "What is ham radio?"

Usually, I start by talking

Continued on next page



In February, BIARC Treasurer Tony Kitchen, WH6DVI, updated the membership on vital community service comms. *See additional clips from his presentation on Page 2.*

ARES Leadership Hawaii County Update:

- A brief overview & discussion of:
 - HC CDA Siren Net
 - County Fire Department AUXCOMM program
 - ARRL Volunteers on the Air. (Activation using W1AW call. See <https://www.arrl.org/volunteers-on-the-air>)
 - DEC/CEC Updates

Silent auction for radio equipment set to start

A silent auction for an assortment of ham radio equipment will be conducted at the March and April membership gatherings of BIARC.

Then, at the May meeting, the bids will be reviewed and the winners may claim their new toys.

The monthly BIARC sessions are now being held in person and via Zoom at 2

p.m. on the second Sunday of each month at Kamana Senior Center in Hilo, preceded by the monthly executive board meeting at noon.

The items have been donated to the club by the family of a Silent Key.

Bids will need to be placed in person at the Kamana venue.

Proceeds will go toward purchasing a club radio to be used for

BIARC activities, said Roy Kunishige, KH6KU, the executive board member who is coordinating the activity.

At the March meeting, Roy also will bring his homemade, all-coax 6-meter antenna and demonstrate how it's an "easy build."

This antenna works great and anybody can make one, he promises.

- Two of the main positions in the AUXCOMM program are:
 - COMT: (Communications Technician)
 - COML: (Communications Leader)

Implementations of the AUXCOMM model are often put in place at the state level. They may be under the authority of the SWIC (Statewide Interoperability Coordinator), Emergency Management, or another Agency.

The purpose and activities of an AUXCOMM program may vary widely from one jurisdiction to another.

- The AUXCOMM program was developed to follow NIMS guidance and adhere to the Incident Command System (ICS) structure.
- Within the ICS Organizational Chart...
 - The Communications Unit (COMU) is situated under the Logistics Unit.
 - An AUXCOMM unit falls within the COMU.

Volunteers are trained and become qualified to fill positions on their AUXCOMM team by successfully completing various tasks defined within the Position Task Workbook for a given position. The PTB is created and approved by the sponsoring agency.



The club meets in February at Kamana Senior Center in Hilo.

Continued on next page

THE PRESIDENT'S CORNER

From previous page

about emergency communications when the communications we use everyday is not available because of a natural or manmade disasters. This gets their attention because most of them have an intimate relationship with their cell phones. I am glad they accept the possibility of losing all communications because this makes it easier to answer their question.

With a proud voice, I say, "When this happens, ham radio will be available to provide communications." I explain how ham radio will not restore everything, but it will provide critically needed communications for coordinating resources for emergency shelters, communications to direct resources for a medical need in the field, and communications to comfort people worried about their loved ones.

Solemn nodding heads tell me that they understand what ham radio is about, but I always get a follow-up question, "Eh, so this expensive?" My pidgin speaking friends ask this question. I answer, "Yeah, expensive, but just like golfing. We always got to have the latest." This they can relate to.

The conversation is often concluded by explaining how we have cool call signs which makes it easier to identify each other on the radio, and how ham radio operators are capable of communicating with operators anywhere on this world, and how interesting the technology of radio communications is technically. No one asked me why it is called "ham" radio and I am glad because I really don't have a good answer.

From previous page

- A few benefits of the AUXCOMM model are ...
 - It allows agencies greater flexibility to cover expenses related to background checks, training, travel, gas, etc. that relate to volunteer activities.
 - Volunteers may be eligible for a variety of training opportunities with the costs paid for by the government.
 - FEMA and various other grants can be used to cover the agency costs related to the AUXCOMM budget.

- Two of the main positions in the AUXCOMM program are:
 - COMT: (Communications Technician)
 - COML: (Communications Leader)

Implementations of the AUXCOMM model are often put in place at the state level. They may be under the authority of the SWIC (Statewide Interoperability Coordinator), Emergency Management, or another Agency.

The purpose and activities of an AUXCOMM program may vary widely from one jurisdiction to another.

- HCFD AuxCOMM began to form up in April of 2022.
 - It was initiated at the request of Ian Smith, the Assistant Fire Chief of the Hawaii County Fire Department.
 - William Polhemus, NH6ET was put in charge. He is the only member of the team qualified as a COML.
- There are currently 4 members of our AUXCOMM team. We are looking for additional volunteers from all parts of the island.

- As our size and expertise grow we plan to ...
- Setup/test/maintain the Fire Departments auxiliary repeaters and radio equipment.
 - This equipment may be used for backup if the County P25 phase II system fails.
 - It may also be used if an incident develops in an area outside of the P25 systems coverage area.

- Licensed Amateur Radio operators and ARES members are ideal volunteers for AUXCOMM program when ...
 - They have knowledge and experience in things like antenna theory, repeater infrastructure, emergency power, Interop frequencies (NI-FOG) and digital modes.
 - They are enthusiastic about learning and helping their community by working closely with County and/or state employees, equipment, and systems.

- Benefits of the AUXCOMM model ...
 - Volunteers may be authorized to use FCC licensed frequencies outside of the Amateur Radio Service (part 97) based upon their affiliation to the agency and as authorized by the SWIC and sponsoring agency.
 - Volunteers may be given access to sensitive information that is normally considered confidential and proprietary to the agency.

Volunteers may legally be given access to expensive agency equipment and communications infrastructure, while at the same time this equipment is covered under existing equipment insurance Policies. Volunteers may also be covered by existing liability insurance policies maintained by the agency.

- We participated in the 2022 joint communications training exercise as part of the civilian support team, along with the fire, police, and civil defense agencies. The exercise was instigated by the 93rd Civil Support Team. (Hawaii/DOD)
- In 2023 we teamed up with BIARC to deploy repeaters for use by the County, State, and US Army personnel at the Pohakuloa Training area.

- Opportunities for ARES and AUXCOMM:
- The state SWIC and HI-EMA is aware of AUXCOMM. The possibility exists that it could be set up at the state level, or by other other county agencies.
 - It may have a focus on training, set up, and maintenance of communications infrastructure, instead of the volunteers actually handling message traffic.

Hawaii County Civil Defense Siren Net

- Hawaii County Civil Defense Siren Net:
- The Hawaii County Sirens were requested to be monitored by Duane Hosaka (Hawaii County Civil Defense Agency).
 - KHERDO, our East DEC worked with KH7LM to organized volunteers and we began monitoring sirens islandwide on the first business day of each month.
 - The net begins with roll call check-ins at 11:30 AM.
 - Sirens sound at 11:45 AM.
 - Reports are received from each station.
 - The net typically concluding around noon.
- February 1st, 2023 was our 29th month of operations.

- Net Details ...
 - The net is held on the Hawaii/Mainland Albat net. (Linked VHF, UHF, and simplex nodes.)
 - The Albat network is configured in a "Hawaii County Only" mode prior to the net via an automation script developed by W6SAV.
 - This script dynamically modifies the linking configuration of all repeaters before the net through a local hub station in Hilo.
 - Another script is run after the net is completed to relink all repeaters and nodes back through the main system.
 - Any volunteer monitor unable to participate in the net can call or text their report directly to KHERDO.
- The final report is typically submitted to the HC CDA by 1:00 PM

- Winlink Testing:
 - Recently a Winlink template was developed for siren reporting, which provides the potential for a GIS mapping of siren reports.
 - Many stations must drive near to the siren location in order to hear the siren. These stations typically would not have mobile Winlink capability. We realized that only reporting via Winlink would not be a workable replacement for voice.
 - We've encouraged stations who wish to try the Winlink form to do so, but asked them to continue to participate in the voice net as well.

County Civil Defense is happy with our current reporting format. It provides a single document where they can see the status of all sirens. They do not wish to receive Winlink messages from each station.

Defining County ARES Goals:

- We are all encouraged to set, document, and share our 2023 ARES goals for each county with the ARES team.
- The best practice is to make our goals "SMART"
 - Specific
 - Measurable
 - Achievable
 - Realistic
 - Timely

Goals that are specific have a significantly greater chance of being accomplished.

Tips for maintaining your generator

Many of us have portable emergency generators that we bought for use during electric outages. After we use them, we store them away until we need them again. Many of us just put them away in the back of the garage or into a storage shed without giving it any thought.

Here are some tips on how to store them properly:

— If there is still gas in the tank, either drain the gas or add some fuel stabilizer, such as STA-BIL. This will keep the gasoline from deteriorating and usually will make it last for 18 to 24 months.

— Run the generator with the fuel stabilizer, then shut off the fuel supply valve until the generator stops. This will make sure that no gas remains in the carburetor or fuel line. Change the oil using the manufacturer's recommended oil viscosity. The recommendation is usually SAE HD30 for warmer months, or 10W-30 for colder months.

— Clean the generator with a clean cloth, and cover it with a plastic cover or a tarp.

— If you store any gasoline in an approved storage gas can, make sure you add STA-BIL to it. Better yet, pour the leftover gas into your automobile gas tank. Buy some extra oil and a small funnel so that you can add oil next time you run the generator. It is sometimes hard to get the correct oil in the middle of an emergency, and small engines will burn oil on extended run, causing the low oil shutdown to engage.

— Buy an extra spark plug for the generator.

— Store your electrical extension cords and adapters with the generator so they will be right there when you need them.

— If the generator gave you any problems during the last run, take it to an authorized repair facility to have it looked at. The next emergency is not the time to be playing junior repairman with the generator.

— Keep a tag on the generator noting when it was last used and serviced, along with the age of the stabilized gasoline in the tank. Better yet, keep the gas tank empty.

— Read the generator manufacturer's instruction manual and keep a copy handy for reference!

—*Thanks to the Great South Bay Amateur Radio Club newsletter, The Compass*

Keeping track of DLK

John Bush's QTH on Ulithi Atoll.



Darrell Asuka, KH6RDO, notes that our John Bush, KH6DLK / V63JB, has been featured in the DX World newsletter.

V63JB - Ulithi Atoll, OC-078 | DX-World

After being off air for a considerable period of time, John **V63JB** is again active from Ulithi Atoll, F.S.M. QRV so far on 30m FT8. Previously he was active on 20m SSB & FT8. John is the technology coordinator at the local school on the island (Federal Elementary). The principal of the school is also a licensed radio ham - William **V63YWR**.

BIARC to launch new monthly net on March 12

Aloha all,

The BIARC is starting a new net on the second Sunday of each month at 7 p.m. Check-ins will start on the Kulani 146.760 repeater. After the first round, the net will move to simplex 146.520. The inaugural event will be Sunday, March 12.

"Each time, we will be asking new questions," said coordinator Gary Schwiter, WH6EPS. "Here's a hint for the first time: You will need your GPS, so please have it written near your station.

"Also we will be asking each station to keep track of the net control checks — this will be for the net's main activity. Hope to see you all there Sunday at 7 p.m."

*Thanks again,
WH6EPS*

BIARC meets Sunday, March 12, at Kamana

The March BIARC Executive Board meeting and membership gathering will be held at noon and 2 p.m., respectively, on Sunday, March 12, at Kamana Senior Center in Hilo.

BIARC President Alan Okinaka, KH6ATU, invites all members to attend the board meeting, as well as the membership gathering which follows.

Zoom access will be provided courtesy of Les Hittner, K0BAD, at this link: <https://us02web.zoom.us/j/5181360132?pwd=bTVFTG5HZXowYVJ6OHpFcEV1dHJRU09>

Kamana Center is located at 127 Kamana St.

BIARC EXECUTIVE BOARD MEETING

February 19, 2023

BEGIN MEETING

- The meeting was called to order at 12:02 pm by Board President Alan Okinaka. Venue was the Kamana senior center in Hilo.

QUORUM

- Board members: Alan Okinaka, James Huntley, Roy Kunishige, Tony Kitchen, Joseph Rosenbaum
- Non-board club members: Bob Schneider, David Miller and Gary WH6EPS

Secretary's Report and Minutes

- Tony Moved and Roy seconded that the January BIARC Board Minutes be approved as published, motion passed.

Treasurer's report

*Unable to hear who approved the January 2023 Treasurers report.

Roy moved and Jim seconded to increase the club activities budget to \$400, motion passed.

This being the only change from the 2022 budget, Jim moved and Roy seconded to approve modified budget for 2023, motion passed.

Committee reports:

Digital Systems:

- Jim will talk to John Bonewitz about digital satellite tracking and other radio subjects for his students. William is working on getting a linking network for the Kulani Cone repeater. The radio for the Peppekeo ARDEN mesh node is ready to install, waiting on antenna.

Education and outreach:

- 2023 objectives:
Add beginner and advanced training courses in radio theory and operating practices.
Firming up a location to store the lending library.

Operating activities:

- 2023 objectives:
Field Day
Foxhunt
APRS demonstration
Demonstration of easy, portable antenna set-up for activities such as Field day, Pota, Sota, etc.
Need to survey members interests to decide what other activities to plan

Continued on next page

Programs:

- The March meeting will feature a program on the T2LT HF antenna, an easy to build antenna that doesn't require soldering skills and is made out of coax cable

Repeater committee:

- Jim proposed to ask the Orchidland CERT team if they want to relocate the BIARC CERT repeater to their tower at their command post.

Public Service Communications Committee:

- Goals and objectives:
Work with Education and Outreach committee in preparing and disseminating a BIARC information and membership flier.
Prepare a letter of introduction for BIARC that is addressed to the press and associated news outlets about the existence of BIARC and it's activities.
Establish or enhance communications with organizations such as CERT and Neighborhood Watch in Puna.
Contact and engage with educational institutions in Puna.
Work with ARES to establish POCs with the Faith-Based organizations and help establish communications links in the event of a disaster.
Doug Wilson stepped down from the committee, more committee members are needed

Old business:

- Tony moved and Jim seconded to approve the emergency email vote regarding the Hawaii Fire Department's Auxcomm team request to provide two repeaters and two diplexers to the Pohokaloa Training area. Motion passed.

New business:

- We had a donation in January of radio equipment. In order to fund a radio for BIARC activities such as Field Day, Roy moved and Jim seconded that we hold a silent auction of all the donated equipment for a period of three months, March to May. You must be physically present to bid

on items which will be on display. At the end of the May meeting all bids will be opened.
Motion passed

- At the January meeting Alan verbally surveyed the Board and members on what the club's purpose is. Three areas were identified. The first area is community involvement. In conjunction with ARES we were invited to have a health and welfare exercise and we plan to create a presentation to let community centers, faith based organizations, etc. know that in a disaster where the phones and internet are down we can get and receive voice and email messages from family and loved ones. There are other community involvement activities we are exploring
- The second area is to maintain and help improve members technical skills and knowledge. We plan to offer classes on basic and advanced radio subjects and have programs for beginners such as teaching soldering skills, basic radio programming, etc.
- The third area is to adhere to FCC Part 97 regulations. To ensure members understand the general guidelines and changes that govern the amateur radio service. To advise members on frequency privileges and also the Hawaii band plan repeater coordination, which is not required by law but is good operating practice.

There being no more business Alan adjourned the meeting at 1:32 PM.

*Respectfully submitted,
Secretary Joseph Rosenbaum, WH6FZH*



Hams needed!

Start planning now to make contacts during the 2023 and 2024 solar eclipses

Ham Radio operators, we're calling you! Members of the Ham Radio Science Citizen Investigation (HamSCI) will be making radio contacts during the 2023 and 2024 North American eclipses, probing the Earth's ionosphere. It will be a fun, friendly event with a competitive element—and you're invited.

Both amateur and professional broadcasters have been sending and receiving radio signals around the Earth for over a century. Such communication is possible due to interactions between our Sun and the ionosphere, the ionized region of the Earth's atmosphere located roughly 80 to 1000 km overhead.

The upcoming eclipses (October 14, 2023, and April 8, 2024) provide unique opportunities to study these interactions. As you and other HamSCI members transmit, receive, and record signals across the radio spectrum during the eclipse, you will create valuable data to test computer models of the ionosphere.

For more information, go to <https://hamsci.org/festivals-eclipse-ionospheric-science>



***August 21, 2017 Solar Eclipse as seen from the Great Smoky Mountain National Park, near Maryville, TN.
(Credit: W.D. Engelke AB4EJ)***

World Amateur Radio Day theme: Human Security for All

The International Amateur Radio Union (IARU) announced that Human Security for All (HS4A) will be this year's theme of World Amateur Radio Day on April 18, 2023.

The day is being celebrated with a 2-week operating event occurring April 11-25. Special event stations will be operating from around the world, making two-way radio contacts to call attention to the HS4A campaign.

The concept of human security measures the security of an individual by things essential to one's well-being. This includes economics, food, health, the environment, personal factors, the community, and political factors.

Amateur radio is uniquely positioned to address those challenges by promoting technical knowledge, practical skills, innovative technology, and the deployment



of backup systems at the community level that can be called upon in times of emergency.

IARU, a federation of the national amateur radio societies of over 150 countries worldwide, is the global advocate for amateur radio through its Sector Membership in the International Telecommunication Union, an agency of the U.N., and other activities.

The United Nations Trust Fund for Human Security and the World Academy of Art and Science are partnering with IARU in the campaign.

In a release, the partners wrote, "Amateur radio has re-

peatedly demonstrated its ability to address human security needs. It is a truly global communications medium comprising some three million radio enthusiasts connecting communities and the peoples of the world."

ARRL participates in World Amateur Radio Day each year. It was on this day in 1925 that the IARU was formed in Paris. ARRL co-founder Hiram Percy Maxim was its first president. For additional World Amateur Radio Day resources, visit <http://www.arrl.org/world-amateur-radio-day>.

In Brief...

A Barbados amateur radio operator, thought to be among the world's oldest operators, has died. Winston "Woody" A. Richardson, 8P6CC, died on February 1, 2023. He was 108 years old. Richardson was born on the island of St. Lucia and was first licensed as VP6WR, before Barbados achieved its independence from the United Kingdom. "I first met him in September 1967, and we were lifelong friends," said Jim Neiger, N6TJ. "He had a modest station at Upton Terrace, in the suburbs of Bridgetown, [Barbados], and was formerly the Superintendent of the Barbados Water Authority." Richardson hosted Neiger's 8P6J contest operations, which included a number two spot in the 1980 ARRL DX CW Test, and several top-five spots in the CQ World Wide DX CW contests from 1980 to 1982. The Woody Richardson Communications Room at the Amateur Radio Society of Barbados is named after him. Richardson visited the headquarters of the Amateur Radio Society of Barbados in 2020.

W1AW/KH6 VOTA Contest Operation

Aloha all,

You have probably heard about the ARRL VOTA (Volunteers on the Air) 2023 contest but may not be familiar with the background behind the W1AW/KH6 VOTA operation. Why W1AW?

Well, the ARRL club station W1AW was the first FCC allocation of a Radio station promoting the Amateur service.

“In December 1936, the FCC -- in the first action of its kind -- assigned the call W1AW to ARRL in memoriam. A 7-acre site was purchased in the sleepy town of Newington, about 5 miles southwest of Brainard Field. The Maxim Memorial Station, W1AW, was dedicated on September 2, 1938.”

Here is a link to information about the current station

<https://www.arrl.org/inside-w1aw>

Many hams have had the opportunity to visit ARRL HQ in Newington and operate the station which has evolved to support multiple operating positions on all frequencies and modes. Recently the League has promoted portable operation of the station in all US states and territories. This year is the second opportunity for Hawaii hams to operate this famous station with their own equipment.

In 2023 Hawaii was allocated two weeks to operate W1AW/KH6. The first was a few weeks ago – February 8th thru the 14th — and a second opportunity will be in December. Simultaneous operation of three modes (CW, Digital, and Phone) were permitted on contest bands. Each mode had a coordinator – Lloyd Cabral (KH6LC) for CW, Kimo Chun (KH7U) for phone and Michael Miller (KH6ML) for digital. They did a fantastic job that resulted in over 11,000 QSOs.

Joe Tabrah (AH6T) was the state coordinator submitting all the

VOTA Update

The yearlong ARRL operating event, Volunteers On the Air (VOTA), celebrating all ARRL volunteers continues. Many operators around the country are having fun making contacts with designated point givers.

Anyone that is an ARRL member, all the way up to the ARRL President and CEO, as well as any field appointee, have points to give. Visit the website at vota.arrl.org, where you can find details about the ongoing event. Check out the list of activations, the leaderboard, and find out how many points all of the different volunteer positions are worth. All points are awarded through Logbook of The World, so there is no special exchange or reference to make. Simply contact them and log the contacts. Get to the site and read up on the details. Most importantly, have fun on the air.



logs to LoTW for award credits. He took responsibility for formatting the uploads to LoTW for Hawaii operators. Many thanks to him for handling this part of the event, freeing W1AW/KH6 volunteer operators from

administrative tasks. Some who had no LoTW accounts were able to participate thanks to Joe's help.

Joe provided some statistics for the first week:

8-14 FEBRUARY W1AW/KH6 VOTA OPERATIONS SUMMARY (21 February 2023, AH6T)

A total of 11,719 contacts, contained in 23 logs, were consolidated into the submittal made to ARRL/LOTW on 21 February 2023.

Operating modes included CW, SSB, FT8, and MFSK as follows:
CW 4,423 37.7%
SSB 2,282 19.5%
FT8 4,680 39.9%
MFSK 334 2.9%
Total 11,719 100.0%

As a matter of interest, W1AW/KH6 made contacts with a total of 107 countries.

Coordinators/Operators:

Thanks to the coordinators for each mode who managed scheduling and coordinated the use of the W1AW/KH6 call:

CW: Lloyd Cabral,
SSB: Kimo Chun, KH7U
Digital: Michael Miller, KH6ML

Thank you too, to all of the operators for their dedication of significant time to the effort!

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

Having lost its tree, KNYO needs a new radio tower

BY ELLE KEHRES
RADIOWORLD
February 21, 2023

A low-power FM radio station in northern California is still in recovery mode after a series of storms brought down its rather unusual tower: a 70-foot pine tree.

Throughout the month of January, a series of atmospheric rivers — monster storms that form over the ocean and flow inland — swept though the Golden State, causing billions of dollars in economic losses and property damage. KNYO(LP) in Fort Bragg, Calif. (pop. 6,970) was not immune.

On Jan. 4, the 70-foot tree that held up KNYO's antenna was completely uprooted. KNYO Station Manager Bob Young said that after serving the station for 16 years, the mighty pine was no longer.

"The tree had still been alive but apparently had some damaged areas, as a lot of the pine trees here have from drought and pine bark beetles," Young told RadioWorld. "It served us well."

The station's still-functioning, omnidirectional Jampro antenna is now desperately in need of a new home.

KNYO is licensed to the Noyo Radio Project with an 87-watt signal on 107.7 MHz. Since its tree tower was brought down, KNYO has been working to raise \$5,000 to fund the construction of a tower as well as antenna installation. As of Feb. 18, the all-volunteer station had received more than \$4,000 in community donations and "will be making some hard decisions and doing some building soon," according to Young on KNYO's GoFundMe page.

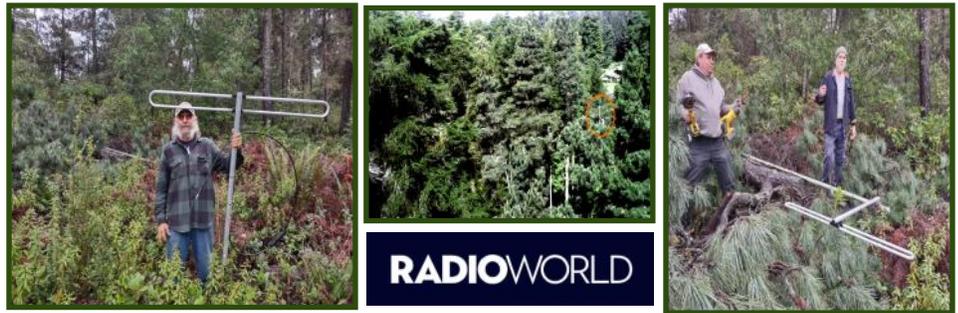
To learn more about KNYO's recovery efforts, as well as its unique antenna placement, RadioWorld asked Young a few questions via email. His responses are as follows:

RadioWorld: In regards to the tree-mounted antenna: Isn't that arrangement unusual? How did you come to decide to do that?

Bob Young: Putting a broadcast antenna on a tree is, to my knowledge, pretty unusual. When it was initially discussed, local professional antenna installers were quick to point out that trees are largely water, and said that the surrounding canopy of 50- to 100-foot-tall trees, and the mast tree itself, would soak up a lot of RF and make it unusable.

We also spoke to DIY ham radio folks who had some success using trees. Our lack of experience was probably a factor as we did not have many LPFMs up here in 2005 with whom we could communicate.

As dedicated DIY-ers out here in the woods, we considered it. Our fundraising efforts were not very successful in 2005, as



(Left) KNYO Station Manager Bob Young holds up the "trusty Jampro" antenna following the storm. (Middle) Photo of the Jampro JFWD still attached to the downed tree, with living branches just below the antenna. (Right) Volunteers Joe Wagner (left) and Sean Keppeler (right) work to untangle the equipment.

~~~~~ After storms took out their rural 70-foot pine tree tower, the all-volunteer low-power FM station operators are raising funds and investigating options. Their research has included discussion with area DIY ham radio folks who have had some success using trees to anchor antennas. ~~~~~

we have several excellent FM stations here and interest in ours was slight. With the deadline of our 18-month construction permit approaching we had to make some hard decisions. We went the least expensive route. We purchased a Broadcast Warehouse TX-150, a Trilithic EasyPlus [EAS system], a relatively inexpensive Jampro JFWD folded FM dipole antenna (a great purchase, it is still in use, no damage when the tree fell) and the cheapest usable coax.

[We were also] gifted a lightning arrestor system, an Optimod processor and a couple computers and some home audio gear and gear from a local band. A close friend and expert tree man climbed the 80-foot tree, topped it, and mounted our antenna at 70 feet.

The installation was amazing to me. High tree work is dangerous, but he finished in four hours, no big deal, and donated his services. We were on the air and getting our desired five-mile coverage! Our research at the time, at the FCC site and with the team then at Prometheus Radio Project could find no prohibition of trees. It is still legal I believe. We just had several professionals who strongly advised against it.

**RW:** You said an FCC inspector visited the tower site in 2006 and approved the build; what did he have to say about the unusual setup?

**Young:** It is also unusual for the FCC to do inspections out here. We have more FM stations here than in 2005, but [it's] still a tiny market. Apparently some doofus was experimenting with a transmitter and was stepping on the police channels. While they were here the FCC agents visited every station up here. I got a call one day from my fellow board member and owner of the station site that there was an agent visiting. I was a letter carrier

for the USPS and I received permission to leave my route and go talk. It was Agent Thomas Hora who is now retired. He looked at the antenna and said "Well, we don't have to worry about tower violations." He was very helpful, advised us to keep a handwritten copy of our EAS transmissions and approved of our setup.

**RW:** Would the growth of a tree not change the antenna's actual height, thus putting KNYO out of compliance?

**Young:** Trees grow through meristematic growth of the shoot stems — the root stems — or lateral meristematic growth, which means that the tops grow upward, the roots grow downward and lateral growth expands the girth. If you place a nail in a tree at three feet height and return 30 years later, the tree may have absorbed the nail through lateral growth but it will still remain at three feet height. Our local tree experts taught me that.

This is a drone photo that shows where the antenna sat just above the canopy, prior to the tree's collapse. "The antenna was essentially invisible from the ground," said Young.

We did experience a problem with lateral meristematic growth. The coax was fastened to the tree with large industrial cable ties. After about 12 years of trunk expansion all the cable ties popped!

**[Sign Up for Radio World's SmartBrief Newsletter]**

## ELLE KEHRES

The author is a content producer for RadioWorld with a background spanning radio, television and print. She graduated from UNC-Chapel Hill with a degree in broadcast journalism. Before coming to Radio World, she was the assistant news director at a hyperlocal, award-winning radio station in North Carolina.

