Prez Says **_The GARS Repeater_** July 2024

Salutations from the lair of KF6OBI! – With the month of June now passing and the rain year coming to a close, here are the stats on the total rain fall recorded on Saint John, and here at the QTH of KF6OBI, for this past rain season. Saint John saw 15.51 inches of rain. Some of this is measured snow when it thawed out in the rain gauge. Here at the QTH we measured 21.25 inches. Please be aware that cross wind components have an effect on rain gauges that are placed above ground level, AGL.

The month of June passed so fast that my head is in a spin. The really hot weather we have been experiencing of late is now having its effect on plans and activities here at the QTH. So far the weather is not much different that last years, but the reporting seems to indicate/tell a different story. Wonder why that is? Don't panic as we will have cool periodic spaces between the heat waves. So find cool places to rest and please stay hydrated, and seek medical attention early if you can not control your bodies responses to its physical space.

Space weather update. Solar cycle 25 is not anything like cycle 24. Predictions on solar storms and magnetic field strengths are consistently being under predicted. The reason being is that the solar storms of today are not what they were 10 years ago. They are getting stronger and happening closer together, but believe, they have everything to do with our bright star. To learn more about our Space Weather, what is taking place now, and how it effects us worldwide, then go to <https://www.spaceweatherlive.com/en/news.html>, and <https://www.spaceweatherwoman.com/>, and <https://www.swpc.noaa.gov/>.

Field Day 2024 has now past us bye and I must have report that all went extremely well on all fronts. Much thanks to Jeramie, W6LND, for planning this event at Squaw Camp up in the Mendocino forest. Also thanks to all the participants and their willingness to go the extra mile to make this event a huge success. Fine food in a wilderness setting with Amateur Radio mixed in. What better way is there to spend such quality time than this with a find group of people? Please see the photo recap of Field Day and a short after action review on our website at <https://www.garshamradio.org/>. Looks like we will be doing Field Day 2025 at this same location again so start making plans and pulling your ideas together to make the next Field Day event even better.

Much has been accomplished during the month of June. First there was the first recon trip to the Saint John site where we opened the shelter vents and preformed some resets on the Outback system and the Rigrunner. Before changes to the Rigrunner could be made it locked up again. This has no effect on its ability to function, just the ability to access the unit over the Internet.

The GMRS repeater was delivered to Sutter Buttes Communication where Bill, N6VPI, is trying to figure out the DTMF issues with it. We should have the machines back by the 27th of July, our planned Saint John maintenance trip and Davis Flats camp out. We plan to place the GMRS repeater back into service with a new antenna array.

The Disaster Response Trailer, DRT, operator stations are now fully DC powered and each can be activated and come online using one switch. Training will follow as we use the DRT for various events. The DRT was made ready for travel and Phil, KI6SMN, placed it on display at the Glenn County Fair Grounds for the inaugural Senior Expo held on the 27th of June.

Discovered during Field Day this year use of the new Rododo 2000 watt pure sine wave inverter caused an increase in the RF noise floor, much like the GARS dual fuel inverter generator. Since the DRT is ready for travel the Rododo inverter will be used to preform the EMI testing and analysis. Research is being conducted to find a way to mitigate this issue. More to come as we learn things.

NOTICE: The GARS Monday night net will be resuming operations back on the N6YCK repeater starting 1 July 2024.

Up and coming events are: –See notices are on the GARS Website <https://www.garshamradio.org/>; Hot RF Nights on the 13th of July. A GARS camp out at the Davis Flats recreational area is being planned for the weekend of 27-28 July. This outing is in conjunction with planned maintenance trips at the Saint John repeater site.

This months membership meeting will be on the second Friday, the 12th of July, at the Lutheran Fellowship Hall, 565 Main Street, Artois CA, at 7:00pm. Late arrivals and guests are always welcome. Also remember that one does not have to be a member of the club to participate in our membership meetings and activities. Be safe in all you do and may you all have many blessings in the days and months ahead!

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How's your noise floor?

14/05/2022 By Bob VK3XP

I have lived in my present location for over 40 years, and in the early days the noise floor was just detectable. These days it ranges from S3 to S8 to 9.

So, how does one go about finding where the noise is coming from?

Over the years I have built a number of gadgets to assist in identifying them.

These noise sources can be divided into many categories.

Appliance noise, power line noise, static discharge and RF interference, to name a few.

Finding appliance noise sources can be simply a matter of systematically turning your appliance off then back on again and observing the result. However, be aware that some appliances radiate noise rather than it being conducted through the mains wiring.

Power line noise can be loose connections at power poles, salt spray on the insulators, rusty hardware in cross arms can rectify the AC leakage creating harmonics all up the band. Static discharge produces random crackling usually in dry weather.

Corona discharge is similar but continuous.

What do you use to locate these noise sources?

The first thing to do is to study the character of the noise and log the times it occurs.

Try and describe what it sounds like, is there a pattern, how strong is it, what frequency is it?

This will save you a lot of running around later.

An old AM radio with a loop stick antenna is a good place to start, null out the signal and plot the bearing on Foxhunt or Triangulex applications on your iPad or similar. Take a number of bearings from different locations until you get a small triangle formed on screen. Inside this triangle is your noise source.

To search for corona noise, you will need an ultrasonic receiver that can tune 20 KHz to 44 KHz. The receivers use a parabolic dish to pinpoint and focus the noise into a small microphone (ultrasonic). Reverse parking sensors for cars work well; using similar technology.

The receiver amplifies the noise and feeds this to a mixer where it is converted into an audible signal and fed to an audio amplifier. See CTT at the end of the article.

A small log periodic antenna is useful for searching in the UHF bands. I use an ICOM ICR5 on AM to look for interference from LIPD devices.

On HF a two turn loop with a 200p or 350p connected across the ends to tune the loop on frequency. A small coupling loop 1/5th the diameter of your main loop connected to form a Faraday shield works very well. My method of tuning the loop is to use my antenna analyzer to move the SWR plot onto the center frequency of the noise source; this produces the best result than trying to hand tune as the loop has a very narrow bandwidth.

Brian VK3YNG makes a very nice foxhunting box to use with a 2 meter Yagi.

This has been useful in locating switch mode power supply noise. (And pirates)

Laptop power supply's that are plugged into the wall but not connected to the laptop are really good radiators of wideband noise, detectable up to ½ a KM away.

The cheap Chinese LED lights that do not have the ACMA tick in a triangle are to be avoided at all cost.

I recently found an unusual noise source in my house, whilst walking down my hallway with an AM receiver tuned to 150kHz I got a very loud AC hum in the radio when I walked past my whiteboard, touching the board attenuated the noise greatly. I scratched my head, how can this be there is nothing connected to it. It has a metal frame and a laminate center.

This was being excited by a LED PIR night light plugged into an outlet on the other side of the wall. Turned the outlet off, noise was gone. This unit contained a small switch mode power supply.

I also have a wideband noise that extends from 3.0 MHz to 11.9 MHz it is pulsed at the 1 Hz rate and is around S8 to at its peak of 8.804 MHz. This turned out to be my Smart-meter.

My neighbors weather station goes chirp every 30 seconds or so, I can put up with this as it does not have much effect on SSB signals.

I am now waiting for a response from the supplier.

Tip: Search on the highest frequency you can hear the noise source. The antenna are much smaller and more directional.

Use an attenuator in the antenna feedline; increase the attenuation as you get closer to the source. This avoids overload and false indications.

Plug packs using switch mode are a common source of noise, infrared night lights are good sources of noise. Negative Ion generators are great comb generators up to SHF.

I have accumulated an array of devices to search for noise, the old TV field strength meter for analogue signal is very useful as it tunes 37MHz to about 890 MHz continuously.

- A VK3YNG foxhunting box on 2M
- A two metre loop, A two turn magnet loop 5MHZ to 19MHz.
- The ICR5 scanner.
- A log periodic antenna 400MHz to 900 MHz.
- A homebrew Ultrasonic receiver 22KHz to 44 KHz
- A Palomar field strength meter for up close.

VK Regulations for DXpeditions for International Visitors

20/05/2024 Bob

RASA News Bulletin May 20 2024

The introduction of the Australian Amateur Radio Class License on 19th February 2024 has brought about some changes to regulations and the way callsigns are used.

There are other important regulations international visitors must comply with when operating in Australia and its external territories.

Please don't put your DXpedition at risk of being discredited by the ARRL DXCC Desk.

Finally, it has been two and a half years since Australia introduced 2×1 contest callsigns. A short summary is provided for the information of international readers.

Bands and Band limits.

5 MHz

Australia still does not have access to 5 MHz. The Radio Amateur Society of Australia (one of Australia's two representative bodies) is in ongoing discussions with the Regulator to negotiate access to this band.

1.8 MHz

Australian band limits are: 1.800 – 1.875 MHz.

3.5 MHz

Australian band limits are: 3.500 – 3.700MHz and a "DX Window" 3.776 – 3.800 MHz.

10.1 MHz

Australia is one of only a few countries that permits SSB on 30 metres. Feel free to pick up the microphone and make VK operators happy with a new band slot.

You can download a handy VK Band Plan here. Please note that this is a VK Band Plan – The RASA band plan references the same source information as the WIA band plan. Neither association "owns" the Band Plan.

NEW RASA band plan chart – The Radio Amateur Society of Australia Inc. (vkradioamateurs.org)

Australian power limits

SSB is 400 Watts PEP

CW and Digital modes are 120 Watts average. (The interpretation is "key down")

By all means, bring an amplifier. Just make sure you're aware of these power limits when publishing your intentions.

Callsigns

There have been some recent changes to callsign templates as a part of the Class Licence.

Foreigners can no longer obtain a VK callsign for DXpeditions or short-term stays. Instead, visiting amateurs from countries with which Australia has a reciprocal agreement are permitted to use their home callsigns preceded by the VK prefix. This arrangement applies for visits up to one year in duration.

If you are in Australia for an extended period (i.e. greater than one year) you can either apply for a reciprocal license or sit our exams. If you are in doubt, check this link for details:

Overseas amateurs visiting Australia | ACMA

If visiting for less than one year, you can use your callsign preceded by the appropriate VK prefix, as follows:

- For mainland Australia and Tasmania (VK1-8): VK

- Lord Howe Island: VK (note this is a recent change)
- Norfolk Island, Mellish Reef, Willis Island, Cocos Keeling and Christmas Islands: VK9

(Note that VK9 dropped the first letter signifier in the suffix about 20 years ago: eg. VK9N for Norfolk Isl is not a valid prefix)

For example, a New Zealander visiting Sydney should sign VK/ZL1YYY. If they wish they could sign VK2/ZL1YYY to provide some geographic information, but this is no longer a regulatory requirement.

A visitor (or DXped) to Norfolk Island should sign VK9/ZL1YYY. They cannot sign VK9N/ZL1YYY. VK9N is not an approved VK prefix.

A visitor (or Dxped) to Lord Howe Island would now sign VK/ZL1YYY. Lord Howe is now considered a part of VK2, not VK9. Of course, it remains a unique entity for DXCC and related award purposes.

As with many other countries, these changes are important. The ARRL DXCC Desk can be notified of the correct DXCC Entity for award purposes, and QRZ dot com can also be advised if a change to the system defined default allocation is required. Logging programs can be manually updated.

Remember, Government radio regulators assign amateur radio callsign prefixes. Award administrators will need to update their systems and callsign prefix tables.

Permanent residents of external territories can only use their VK9 or VK0 callsigns from the designated territory. Eg. VK9XX cannot sign VK9XX portable 2 if visiting Syndey.

Contest Callsign – 2×1 Callsigns

As many will be aware The Radio Amateur Society of Australia (RASA) successfully negotiated 2×1 contest callsigns with the ACMA which were approved for use in October 2021. These callsigns have the prefixes VK/VJ/VL with the state numeral and then a single letter suffix. Eg. VJ3N.

These callsigns can be used in *any* contest. There is no “approved list” nor are there any exclusions.

You can read more here:

Regulations and 2×1 Contest Callsigns – The Radio Amateur Society of Australia Inc. (vkradioamateurs.org)

For more information, visit this link and refer to page 9 for contest callsigns.

Amateur radio call sign policy_April 2024.pdf (acma.gov.au)

Dialogue with ACMA regarding these matters is ongoing; further bulletins will be issued if there are any developments.

Download a PDF version of this notice HERE

To stay up to date, visit our website The Radio Amateur Society of Australia Inc. – Representing and Promoting Amateur Radio (vkradioamateurs.org) and follow the News link. Should you have any queries, please send us an email info@vkradioamateurs.org

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GARS Officers: (Board of Directors)

President …… Michael A. Ellithorp, KF6OBI
Vice President …… Bob Wirth, KC6UIS
Secretary …… Jeramie Finch, W6LAD
Treasurer …… Phil Zabell, KI6SMN
Past President ……
Board …… Ryan Elliott, AG6VA
Board …… Mike “Smitty” Smith, WB1G
Training …… Vacant

Publications ……. Vacant
Webmaster / Social Media — Mike "Smitty" Smith, WB1G
Radio Officer …… Phil Zabell, KI6SMN
Emcomm Officer ……. Vacant

Board Meeting, 2nd Wednesday of each month, meetings starting at 6:30 PM via Google Meets
General Membership Meeting, 2nd Friday of each month, meetings starting at 7:00 PM

GARS Meeting locations: Main site is the Lutheran Fellowship Hall, 565 Main Street, Artois CA, our alternate meeting site is the Willows Seventh-Day Adventist Church, 543 1st Avenue, Willows, CA.

GARS Net: Mondays, 8:00 PM Primary: 147.105 (N6YCK) (+)110.9 PL)

GEARS Club Net: Tuesday, 7:30 PM 146.850 MHz-PL 110.9

Sacramento Valley Traffic Net: Nightly 9:00 PM 146.850 MHz-PL 110.9

ARES Nets:
Butte Mondays 20:00 146.850 MHz-PL 110.9
Yuba Sutter Thursdays 19:00 146.085+MHz PL 127.3

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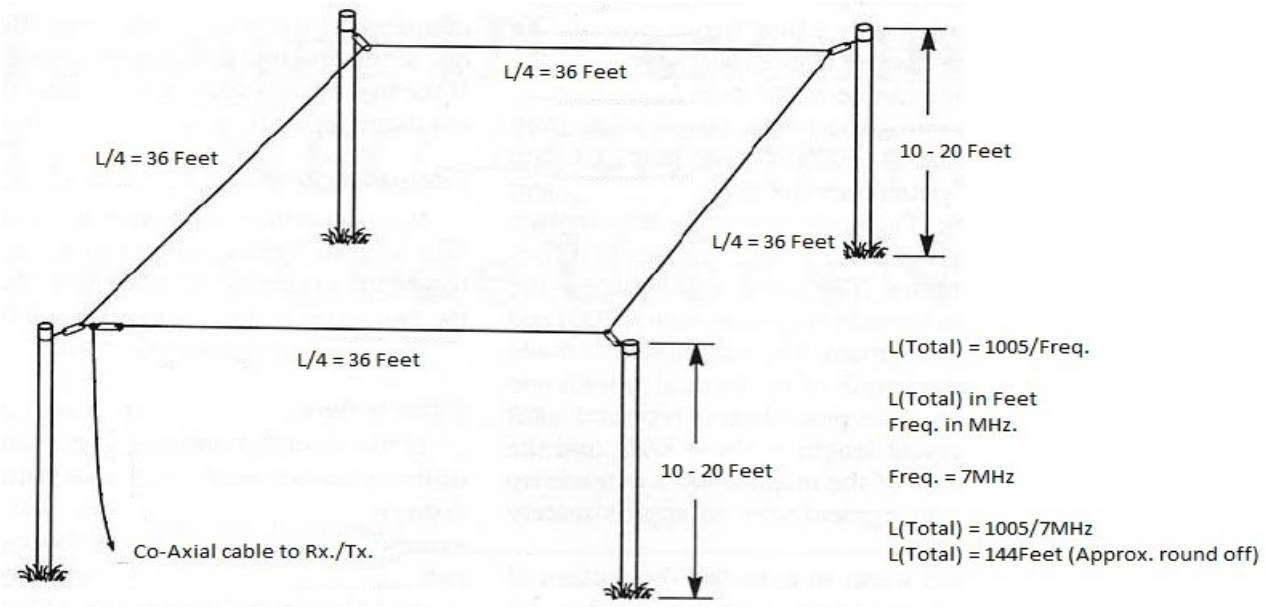
Editor ……..…….. Michael A. Ellithorp, KF6OBI **Distribution—via email—monthly**



Tyler's, N6UTV, Field Day antenna modeled for 80 meters. Cut to L/4 = 72 feet on each side. This worked really well and was a huge success in on other bands as well at Squaw Camp. Height of antenna was about 23 feet AGL.