

## Amateur Radio Portable Operation Notes by Julie VK3FOWL and Joe VK3YSP

Amateur Radio portable operation can enhance your enjoyment of almost any outdoor activity and provide an even greater incentive to get out and about, see our beautiful country, meet interesting people and live a healthier lifestyle. Portable operation is easy, fun, safe, healthy and worth doing. Take your radio gear along with you the next time to venture out. You will be surprised what you can do with a portable Amateur Radio setup. But first, here are a few tips and tricks to help you get the most out of your next radio expedition. Good luck!

### 1. Prepare it

- a. Create a checklist of everything you'll need. It is the obvious things you forget. Revise it as you go.
- b. Check and service your car, caravan, tent, backpack, camping gear or whatever it is you need
- c. Work on your touring, camping, bushwalking or hang-gliding skills, or whatever it is you do
- d. Figure out when, where and how you can responsibly include Amateur Radio operation into your trip
- e. Get your radio gear, power supply, cables and antenna setup working properly at home first
- f. Make sure your equipment is safe, sound, protected and will survive the expected conditions
- g. Try a practice portable session at your local park (STCA)
- h. Create a relaxed itinerary and have a bad weather contingency plan
- i. Plan your route, distances, travel times and operating periods
- j. Use Google Earth satellite and street views to locate access roads, tracks, camps, facilities and trees
- k. Checkout good portable operating spots including mountain peaks, coastlines, lakes, rivers and parks
- l. Pack everything, fuel the car and charge your batteries the day before you go

### 2. Share it

- a. Take someone with you: Involve them in your radio station set up, operations and logging
- b. Inform other Amateurs of your trip; invite them along or invite them to meet you there.
- c. Travel in a radio-linked convoy or meet at pre-arranged checkpoints
- d. Drop in on Amateurs who live along the way and show them your portable setup
- e. Post your trip details on Yahoo groups: krmnpa, SOTA\_Australia wwffaustralia etc
- f. Post alerts on [www.parksnpeaks.org](http://www.parksnpeaks.org), [www.sotawatch.org](http://www.sotawatch.org) websites
- g. Create your own website with all the details of your trip and then send around links via e-mail
- h. Advertise your expedition on the weekly WIA News Bulletin
- i. Pre-arrange mobile and night-time QSO schedules with your buddies
- j. Use APRS to regularly broadcast your GPS location to others
- k. Have QSOs on the way: It reduces fatigue, shortens the trip and lets everyone know your ETA.
- l. Call in on local repeaters. See who is about and let them know where you are heading.
- m. Create your own following and share the fun with everyone

### 3. Enjoy it

- a. The long journey there and back is just as important as the short portable operation
- b. Leave early, refreshed, and don't be in a hurry to get there
- c. Think about where you are, not just where you want to be. Enjoy the moment.
- d. Take the scenic route, visit a lookout, have a picnic, smell the roses
- e. Play I-Spy, sing songs, stop for geocaching, especially with the kids
- f. Practice your SOTA and DX code of conduct procedures on the air
- g. Operate calmly; work the pile up first, then QSY to have a rag-chew with your mates
- h. Stay QRV for the afternoon if you can, try different bands and modes. Make a snack and boil a billy.
- i. Camp overnight, work some rare DX without all of the city QRN
- j. Wake up early, go fishing or bushwalking and checkout the surrounding area

### 4. Be responsible

- a. Apply for a council permit – check the bi-laws for the setting up of stalls and the placing of signage
- b. Get a signed Letter of Introduction from your club
- c. Check your club's Public Liability Insurance. Get a Certificate of Currency. Some venues mandate it.
- d. Make a courtesy call to the property owners when you arrive on the site. Bring them a gift.
- e. Get the property owners to sign a certificate permitting you access, setup and operation rights
- f. Drive and park your vehicles responsibly. Close all gates. Don't scare animals or disturb the peace.
- g. Conduct setup and operations professionally and safely
- h. Set up your station in plain view, but always away from public thoroughfares
- i. Observe Total Fire Ban restrictions and all signs
- j. Leave the site as you found it, or even better: Bring along a garbage bag and clean up any litter
- k. When you see a park ranger introduce yourself. Explain the conservation value of promoting parks.

5. Be safe
  - a. Tell others where you are going and when you intend to return
  - b. Bring adequate clothing, hats, sunscreen, maps and a first-aid kit
  - c. Check the weather forecast and the weather radar
  - d. Get a hands-free mobile kit for operating in the car
  - e. Have a break on long trips, share the driving, stop for coffee and a snack
  - f. Avoid storms, lightning, bushfires, camp fires, falling branches, flooded rivers, snakes and cliffs
  - g. Exercise great caution with batteries especially LiPo and LiFePo4.
  - h. Read battery warnings carefully. Don't short, overcharge or over discharge any battery.
  - i. Pack portable batteries carefully. Don't carry them in your pockets. Don't drop them.
  - j. Don't compromise the integrity of your car firewall or its electrical wiring
  - k. Connect direct to your car battery via your own fused cables. Keep them away from hot surfaces.
  - l. Use lightning protection, grounding and heavy ground cables
  - m. Use overcurrent protection on your auxiliary battery to avoid car fires
  - n. Avoid tripping, electric shock and EMR hazards
  - o. Use caution tape and keep-out signs around your guy wires and pegs
  - p. Lock your car, remove your valuables and hide your stuff from view if you leave the campsite
6. Be heard
  - a. There is not much point going portable and/or QRP if no-one can hear you.
  - b. You often have a low-noise receive advantage, but a low-power transmit disadvantage
  - c. Carefully consider your frequency, TX power, mode, antenna type, time of day and propagation
  - d. The easiest solution is to bring along the best antenna you can carry, and to rig it well
  - e. Rig antennas in a clear area as high as possible using masts, squid poles or available trees
  - f. You can get up to 9m with a mast or squiddy or up to 20m with a line launcher and available trees
  - g. A flat-top centre-fed dipole is 3db better than an inverted V or an end-fed at the same height
  - h. Resonant single band (or linked) antennas are always better than non-resonant multi band antennas
  - i. Use parallel line and an ATU on non-resonant antennas, or thin coax line on resonant antennas
  - j. Try CW or digital modes
  - k. Experiment with bands, operating times, antennas and propagation at home before you go
  - l. Combine awards like KRMNPA, WWFF and LGA with other contests and be spotted on the DX cluster
7. Be seen
  - a. Don't be embarrassed by Amateur Radio – It is a great hobby and people are genuinely interested
  - b. Actively meet and greet onlookers: Spend some time educating them about Amateur Radio
  - c. Introduce Amateur Radio as a rewarding, fun, friendly and easy to join activity for everyone
  - d. Explain what you're doing, who you're talking to. Be amiable, don't be pushy or distracted.
  - e. Explain the basic equipment and antennas needed; Also clubs, meetings, hamfests, contests etc.
  - f. Provide an on-air experience: "Would you like to press this button and say hello to John on the air?"
  - g. Display a world prefix map, a Morse key, AR magazines, a WIA poster, a FAQ sheet and pictures
  - h. Handout WIA brochures and foundation course dates and contact details
  - i. Talk to park rangers. Explain you're promoting the environment using Amateur Radio.
8. Be smart
  - a. Use a mobile network and your smartphone apps for everything you need including:
  - b. Make emergency calls, phone calls, send and receive via SMS, E-Mail, Skype, EchoLink
  - c. Get the date and time (in UTC). Find your scheduled appointments and contacts.
  - d. Use notes for your checklists and itineraries. Keep detailed notes on what worked and didn't work.
  - e. Check the weather forecast, weather radar and bushfire alerts (FireReady)
  - f. Locate yourself and navigate with GPS, Google Maps and broadcast your position with APRS
  - g. Find nearby repeaters and IRLP nodes. Run BPSK31 from your phone.
  - h. Use a logbook app to store and upload your QSOs to QRZ or eQSL or LOTW
  - i. Find out who's on with [www.parksnpeaks.org](http://www.parksnpeaks.org), [www.sotawatch.org](http://www.sotawatch.org) and the DX Cluster
  - j. Check out what's happening with krmnpa, SOTA\_Australia wwffaustralia Yahoo groups
  - k. Google information about local events, attractions and accommodation
  - l. Make on-line restaurant and accommodation bookings and do Internet banking
  - m. Take pictures and videos of your team, your contacts and your surroundings
  - n. Try Geocaching during the day and Star Walk at night
  - o. Run home surveillance and home control apps
  - p. Run a WiFi Hotspot for your other mobile devices. Get accurate NTP time for JT65.

## 9. Get going

- a. Get your smartphone and a \$50 portable VHF/UHF handheld and get going, it's too easy
- b. Add a spare battery and car charger for extended operation
- c. Add a magnetic base antenna for mobile operation
- d. Add a portable Yagi antenna for mountain-top operation
- e. Get your portable HF setup going next: You'll need a battery, HF rig and wire antenna
- f. Experiment with different rigs and batteries: Power vs weight might be important to you
- g. Experiment with different antennas, rigging and portable masts (e.g. squid poles)
- h. Get serious about road-trips with a proper mobile HF/VHF/UHF setup
- i. Experiment with 12V cabling, auxiliary batteries and mobile antennas
- j. For weekend/contest work you'll probably need auxiliary power and heavy antennas
- k. Experiment with generators, solar panels, better antennas and higher masts
- l. Don't forget CW and digital modes. That's where the DX is.
- m. Experiment with a laptop, rig interface and different digital modes: Try JT65 and BPSK31.

## 10. Have fun

- a. There are many activities specifically for portable operation
  - i. Awards: KRMNPA, VKWWFF, LGA
  - ii. Contests: SOTA, IOTA, JMMFDC
  - iii. Weekends: ILLW, IMW, IAAW, PR4ARW
- b. And many others which can also be worked while portable

## 11. Learn more

- a. Avoid nightmare tangles in any long coiled antenna wires: Use PVC tape or Velcro cable ties.
- b. Use hand-over-hand not hand-to-elbow cable coiling technique.
- c. Check your antennas with a pocket antenna analyser. Height and soil effect feed impedance.
- d. Bring tools, spares parts, gas soldering iron, wire and feed line to repair broken antennas and cables
- e. Bring adapters and cables to connect any battery to any rig to any antenna
- f. For mobile operation: Design your own 50 amp DC distribution system using Anderson connectors
- g. Take handhelds on bushwalks. Have several in a hiking group. Leave one in the car.
- h. Use an auxiliary battery isolator switch and Low Voltage Disconnect unit to avoid flat car batteries
- i. Be gentle to trees: Use thick rigging lines and cam-buckle webbing straps to attach antennas to trees
- j. Use a safe and legal antenna line launcher: Try our RoboStick™ MkII. (PVC conduit and a sinker)
- k. Tape squid poles at each joint to avoid the catastrophic collapse scenario.
- l. Use squid poles not to support a dipole, but to drop a lead filled tennis ball and a tie line over a limb
- m. Read the relevant contest rules thoroughly, every year. They change.
- n. In contests use a CQer on one band while tuning around on another band
- o. Use paper logs and a waterproof pen for contests. Transfer to the Internet later.
- p. A JetBoil™ and 300ml water bottles is the quickest way to make a hot drink for two on a cold day
- q. Avoid smoky campfires and mosquito infested swamps
- r. Bring extra dry clothes, socks and shoes. Bring gloves for antenna work on cold mornings.
- s. Check your guy ropes and pegs regularly
- t. Use the minimum power to get the job done. Be prepared for high current drain on digital modes.
- u. Position solar panels for maximum insolation. Avoid some noisy MPPT and PWM controllers.
- v. USB chargers and laptop car adapters are noisy. Try parallel-wound toroids and caps on the input.
- w. Use a gas-capsule lightning arrestor, a ground rod and heavy ground wire
- x. For hard soil drive a 1.5m ground rod, near horizontally just under the surface. Add water.
- y. Use short cam-buckle straps to tie together all your radio equipment into one easy-to-hold device