

Ham Radio Severe Weather Preparedness

For Ham Radio Communications

- March 2025
- Michael Hamby KI4UJY (General)
- Intent of this presentation is general overview of severe weather preparedness
- Inspired by Severe Weather Awareness Day SWAD 2025 NWS Nashville at Trevecca University

SWAD ??? What??

- Severe Weather Awareness Day
- Held at Trevecca University - Nashville
- Meet Local Meteorologist
- Severe Weather Review of the previous year
- Training ?
- Emphasis on weather Safety
- Booths and Displays
- Typically Interferes with a nearby Hamfest



Focus of Ham Radio Emergency Planning Topic (Spring Weather Emphasis)

- Communications Plan (local repeaters/HF Nets)
 - Weather radio
 - Smart Phone
 - Serving Communities and Neighborhoods
 - Ties together Phone Nets/Battery boxes etc.
- Weather Watches
 - Radar Apps
- Family Emergency Plan
 - Alternate Communications
- Household Preparedness
 - Backup Lighting
 - Backup Power
 - Backup Food Preparation
 - Food Preservation
 - Medications
 - Pets
 - Access to funds
- Evacuation/ Shelter in Place

Disruptive Events* (Regionally Specific)

- Common Event
 - Thunderstorms
 - Tornado's
 - Straight-Line winds
 - Flooding
 - Winter weather
 - Ice Storms
 - Snow
 - Disease Outbreaks
- Uncommon Events
 - Communications Disruptions
 - Fire
 - Earthquakes
 - National Disasters
 - Civil Unrest

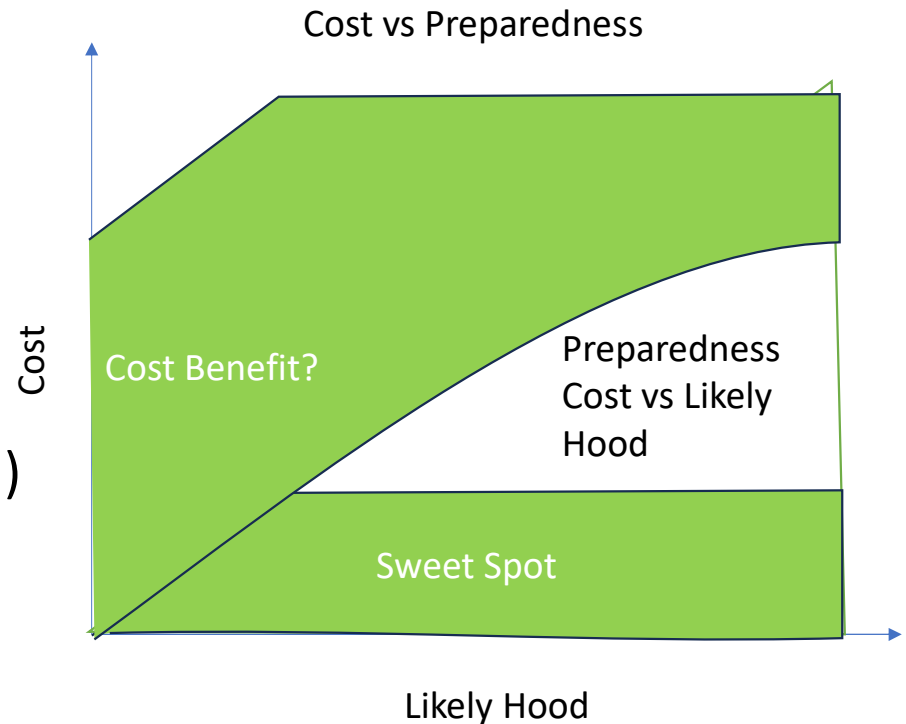
Read, Set, Go (Concept)

Watches/Warnings Paradigm

- Ready
 - Notifications go out days in advance that the long-term forecast indicates severe weather possible ~ usually accurate within 24 hour for the REGION.
 - Good time to check HT batteries , organize kit and recharge equipment, (charge cell phone)
 - Purchase any supplies (staples, perishables , flashlight batteries, cooking fuel, propane)
 - Notify neighbors – emphasis on being weather aware
- Set
 - Severe Weather is preceded by a Watch Announcement
 - A Severe weather WATCH – means the atmospheric conditions are present and there is a potential for severe weather
 - Locate and deploy your radio equipment in a usable configuration – have flashlights, weather radio, etc, plans in place to implement.
 - I carry my HT with me throughout the day (channels set up for NOAA weather radio)
 - Lightning is an issue for connected antennas
- Go
 - A Severe weather WARNING – means severe weather is occurring and there are predication paths
 - This is an immediate action – take appropriate action (shelter immediately).
- Share
 - Be an advocate for being weather aware – don't sensationalize just point to resources for your neighbors and community

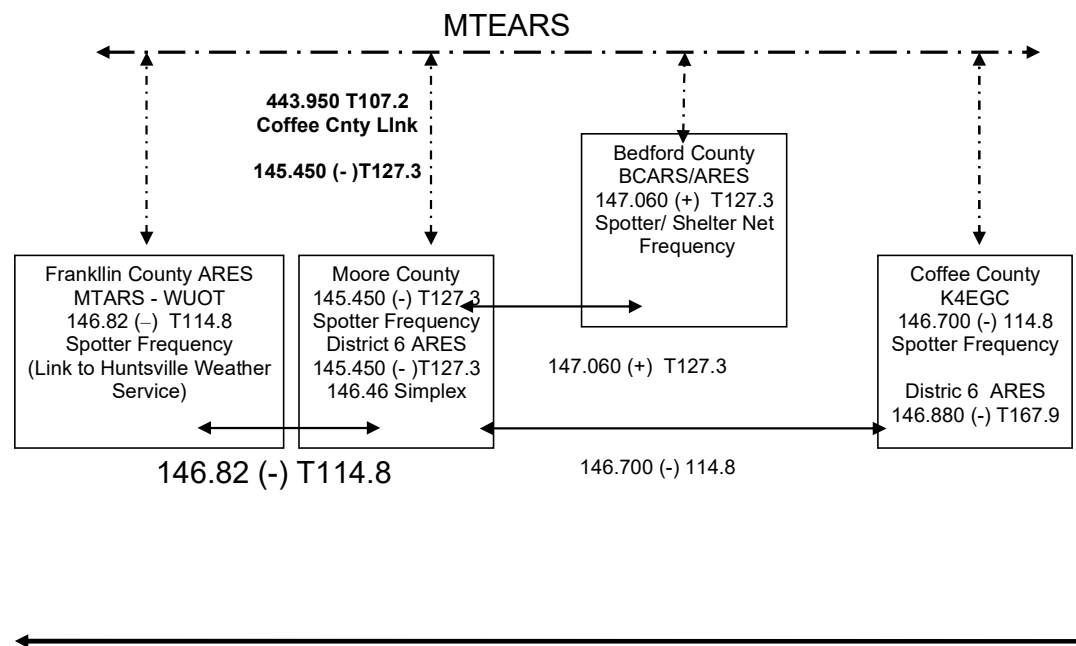
Disruptions

- Power (primary concern)
- Water
- Natural Gas
- Communications (secondary concern)
 - Radio
 - TV/Internet
 - Cell Phones
- Travel
- Access to food
- Economic
- Dual Purpose Preparedness – Camping/Disruptions (personal goal)



Unplanned Events Communication.. Plan

- Moore County Emergency Communication Plan:
- No repeater in Moore County
- Liaison with other surrounding counties (not shown are Marshall and Lincoln)
- Entire Plan in ICS format (not required but encouraged)



Event Tools

- Radios/Antenna's , Batteries
- Notebooks (Pen/Paper)
- Laptops/Maps, (local and state paper maps?)
- Cell Phone (APRS,)
- HT Radio
- Extra batteries
- Portable Power System (minimal for lighting)
- Flashlights
- Appropriate Clothing
- Personal Security
- Medicines/Papers
- Weather Radio
- Contact List (printed)



Radio Operations

- Monitor Situation with HT's
- Setup schedule to transmit status several times a day – especially if solar power is available (give your batteries time to charge)
- All in one radio's draw current even on receive
FT-897 draws close to an amp on receive
- Even when no data is indicated on cell phone useful for a hotspot for Winlink via Telnet (telnet portion of data plan under utilized and prioritized?)
- Request stations with internet/phone handle traffic outside the affected area.
- Meshtastic , GMRS, CB for local communications with non-hams

Preparation for Severe Weather

- Water Source
 - Bottled water
 - Camping water cans (filled)
 - Buckets with water
 - Bathtub filled
 - Bathe /catch up on laundry /dishes prior to event
 - Collect rainwater for flushing (well – at Ready Stage / put out buckets etc)
- Meals (in power outage)
 - Eat fresh items and Fridge items first
 - Frozen items as they thaw
 - Can goods /staples last

Preparation for Severe Weather

- Food cold storage (winter)
 - Coolers in unheated portions of dwelling (refrigerated items)
 - Coolers outside in frigid conditions (freezer items)
 - Frozen food in garage freezer will keep for days
- Food cold storage (summer)
 - Dry ice blocks from store will keep frozen foods frozen for days (in freezer)
 - Place refrigerated items in ice chest iced down.
 - Using camping fridges if available (run on batteries or propane)

Fridge/freezer items (Ice or Winter Storm situation)

- Don't open fridge or freezer but you got to eat..
- Put fridge items in cold garage in a cooler (our garage was 37 degrees) our fridge is set for 38
- Freezer items on back deck in coolers (it was 18 degrees outside coldest night of ice storm.
- Leafy vegies in cool fridge in house
- Should have put kitchen freezer items in outside freezer it never got above 20 degrees even after two days with cold garage
- Summertime is a whole different situation – you'll need ice for frigerated items and start cooking items as they thaw in the freezer or get dry ice from grocery store (one block per freezer)

Preparation for Severe Weather

- Alternate Cooking
 - Camp Stoves
 - BBQ Grill (have plenty of propane or charcoal)
 - Natural Gas/Propane cooking stovetops (lighter or matches required)
 - Sheltered cooking location?
- Alternative Heating (winter)
 - Firewood
 - Propane/Natural Gas logs
 - Blankets

Personal Comfort

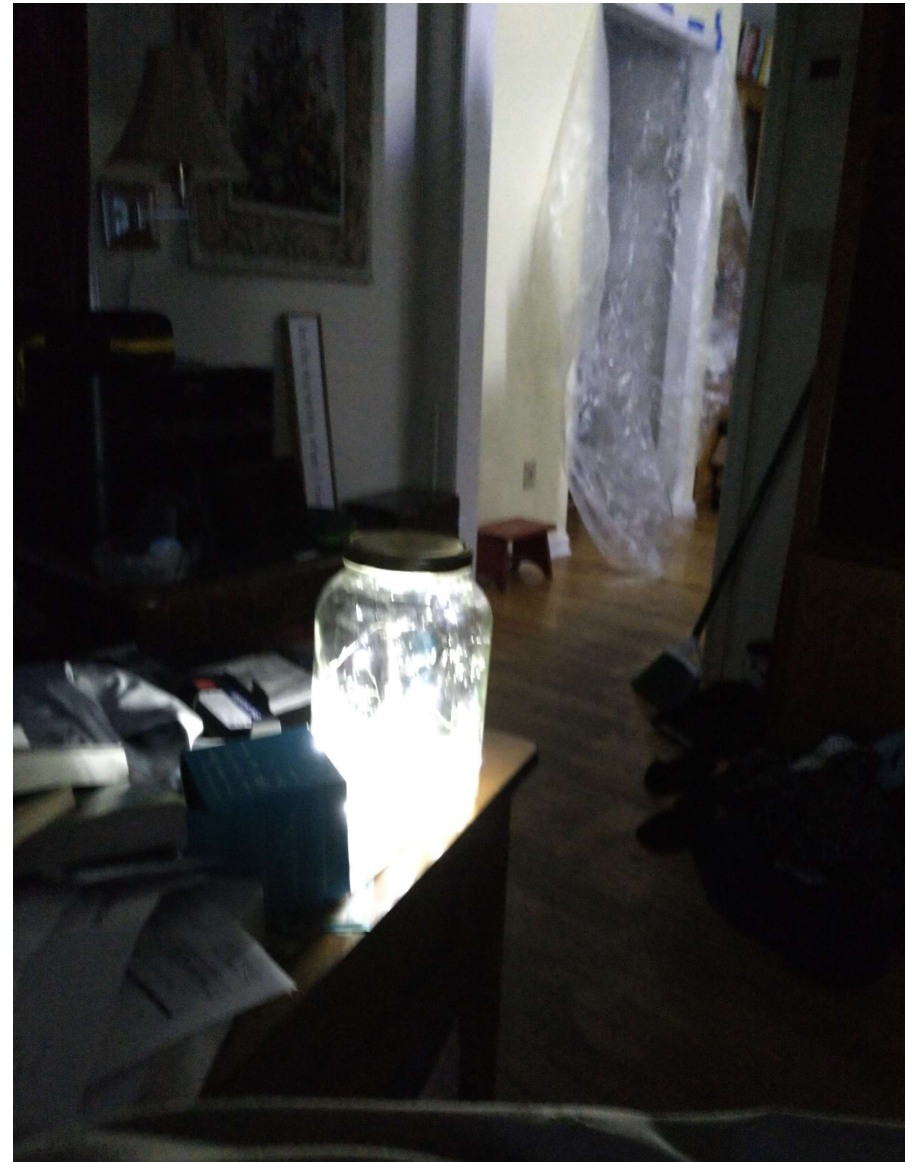
- Cold weather (shelter in place)
 - Alternate heat if possible and safe to do so
 - Blankets and coats
 - Sleep in tents indoors if possible
- Seek heating shelters during the night
- Hot weather (shelter in place)
 - Hydration!
 - Be active during cool parts of morning or evening
 - Relax in shade during hot part of the day
 - Open windows in dwelling to encourage ventilation
 - Sleep in tents outdoors
 - Bug repellant!
- Seek cooling shelters during the day

Preparation for Severe Weather

- Alternate Lighting (basics)
 - Candles, lamps, Camping Lantern (not a fan of open flame lighting)
 - Electric Lanterns, Puck Lights, flashlights,
 - Chem Lights (festive and fun for children)
 - Emergency bulbs (rechargeable lightbulbs)
 - Be ready to share with neighbors
- Alternative Lighting/Power (Advanced)
 - 'Solar Generators'
 - Inverters
 - Generators

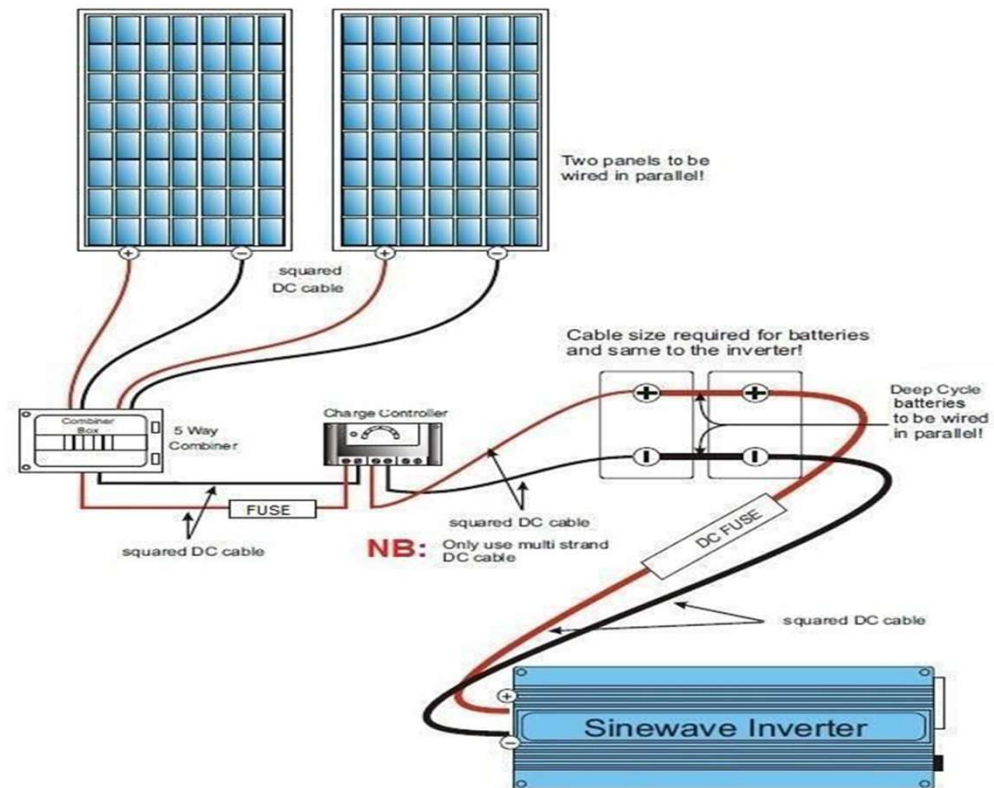
Alternate lighting

- Home made 12 volt LED lights, camping lanterns and work lights are very useful.
- (12 volt lighting is another topic)



Solar Panels, batteries, charge controllers oh my..

- Basic setup
 - Solar Panel
 - Charge Controller
 - Battery
 - Inverter



Kitchen Setup

- Just got a gas stove what a blessing!
- Manual light stove eyes
- Oven requires 110 can't bake
- Kitchen needs lots of light
- Spaghetti for dinner!
- Homemade chicken soup from the night before
- Reheat items in pots or cook items on grill
- Hot tea on demand
- Simmered water warmed the kitchen and added much needed moisture
- 12 Volt Camping Fridge for local items (warm weather need)



My setup.. Continued

- Inverter in my shop wired to a dedicated circuit panel and wired to dedicated outlets throughout the house:
 - Internet Modem
 - Shop desk and APRS station
 - Den Entertainment center (TV, dish network receiver and Router)
 - Den Outlet (lamp)
 - Home Office/Ham Shack
 - Home Office bath (night light in light assembly)
 - Home Office Entertainment center (TV and charger stations)
 - Master Bedroom (bedside lamps, alarm clocks and electric blanket)

Setup capacity

- One night if you are careless⁽¹⁾
- Several days if you charge batteries with solar during the day only use at night.
- Use battery powered lights and only use UPS for electric blanket (Winter)
- ⁽¹⁾ APRS station switched off, but used lamps that evening wastefully – reserve power in cold weather for electric blanket. Switched Internet and router off too.

Charging –12 volt panels and charge controllers

- Deck panel – lower 12 volt battery source (folding 80watt panel)
- Home made stand
- Weak winter sun still charged batteries with Inverter on but disconnected from all loads (wait to use at night)



Other bits – staying warm

- Portable Propane heater – hose routed outside to a grill bottle – adapter hose allows grill bottle/heater to run for days!
- Don't use battery sourced electricity on space heaters
- Save for electric blankets , radio's, phone charging stations..
- Battery powered CO detector/alarm for safety!
- Packed window around hose with bubble wrap and Walmart bags. Sealed with painter tape.



Ice Storm Lessons learned

- Dishes and Laundry caught up before storm hits
- Locate heavy blankets.
- Bathe before storm hits – even with gas hot water bathrooms were cold
- Leave water dripping in faucets.
- Filled up camping water cans, pictures , metal water bottles in case water fails or becomes contaminated
- Locate bulk of flashlights and setup any complex items light 12 volt lights and battery packs before hand.
- Need lighters and matches.
- Have a way to charge cell phones (games, music etc) we had charging packs but my ham shack has battery back up so we charged phones from it.
- Extra propane bottles for portable heaters , gas camp stove
- Start your generator every 6 months per manufacturer's instructions – use fuel stabilizer store empty and drained!

Ice Storm Lessons learned continued.

- New backup power system is an inverter with auto switch over – can be restarted once batteries are charged
 - UPS is geared for AGM batteries – running a telecommunication battery (AGM 180 amp hour)
 - Quick disconnect with extra batteries (Lipo4FE)
- First night it was not bad – house got down to about 58 degrees without auxiliary heat – electric blankets were so nice!!!
- At 16 degrees outside after two days house was down to 47 degrees took two heaters one on high to bring den up and adjoining kitchen to 65 degrees then the power came back on (Yea!)
- Took hours for house to warm back up! Pockets of cold air everywhere! Bed was freezing! (second night would have been miserable)
- Stuff gets broke in the weather – I bring in my folding solar panel at night so it doesn't get broke by heavy snow. (cover over camper collapsed..)
- 20V Work Light and lights that use cordless drill packs are great – work light really lit the kitchen up for cooking and dishes but ran through the battery quickly – use sparingly.

Ice Storm Lessons learned the sequel

- We had a 20 year old generator – hadn't been started in years.
- Connection to house is sketchy (back feed main panel – yikes)
- Not enough fuel at house anyway (what was I thinking?)
- Preference is a smaller generator to run fridge and freezer
 - Transfer switch to switch over dedicated loads
 - Now have a Echoflow Delta 2 (24 hour run time for fridge)
- Purchased additional Propane cabin heaters
- Light up rooms with camping lanterns (electric)
- 12 volt packs and homemade LED lights worked great! (you only need a little light)

Goals to make it better

- Flashlights and solar power cable adapters need to be organized!
 - Can't go to the hardware store with the roads iced over.
- Replace UPS with Self switching inverter – can be restarted if batteries dip too low...once they are recharged and uses 12 volt system which is less complicated to charge with solar. ****Done** AIMS Power PIC100012120S Pure Sine Inverter, 1000 Continuous, 2000W Surge (Peak Power), Selectable 25A or 55A Battery Charger, Built in Transfer Switch, 12V DC Input**
- Organization – stuff was everywhere and hard to find in dark cold house and shop.. ****Work in progress****
- Buddy heater hose:
 - **Mr. Heater Buddy Series Hose Assembly - 10-ft., Model# F273704**
- Stuff for next time:
 - **Audew Car Heated Blanket , Both 12V and 24V Electric Car Blanket with Intelligent Controller-3 Temp and 3 Time Settings, Polar Fleece Travel Throw for Car, Truck & RVs**

References

- <https://www.tn.gov/tema/prepare/make-a-plan.html>
- <https://www.ready.gov/>
- <https://www.weather.gov/safety/thunderstorm>
- <https://www.weather.gov/safety/lightning-toolkits>
- <https://www.weather.gov/safety/thunderstorm-prepare>

Comments/ Questions