



**St. Charles County ARES
Field Guide Prepared By**



Emergency Communications Association

**Issue 5
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Communications



The Amateur Radio Emergency Service (ARES) for St. Charles County in association with the St. Charles County Division of Emergency Management (DEM) maintains an amateur repeater with an input frequency of 144.890 MHz and a transmit frequency of 145.490 MHz. The repeater has an input/output CTCSS frequency of 141.3 Hz. The system consists of three remote receive cross-band links from Portage Des Sioux, the Defiance/Augusta area and the Wentzville area. Each remote receive site receives on 144.89 MHz and links back to the main site on 440 MHz link frequencies. These three remotes and the local receiver at the main site are voted and retransmitted (in duplex mode) from the 100 Watt transmitter at the main site in Harvester, MO. The repeater has two tone sequential paging capability for member alerting. DTMF commands will send tones for alerting the members using tone alert receivers. The system also supports “Long Tone 0” or emergency assistance.



Communications



The Association also operates a 444.475(+) MHz repeater out of Foristell, MO., which is part of a linked system to Columbia, St. Louis and Jefferson City. There are plans to extend the link system to Kansas City in the future. The repeater trustee is Bill Grimsbo (N0PNP). The technical committee responsible for maintenance and upgrades to the repeater system consists of the following:

Bill Grimsbo (N0PNP)

Jeff Young (KB3HF)

This technical committee should be informed immediately of any problems with or abuse of the system.

NOTE: Improper or inappropriate use of this repeater system will not be tolerated and may result in prosecution and loss of amateur licenses and/or monetary forfeiture as deemed appropriate by the Federal Communications Commission.



Weekly Training Nets

RESPONSIBILITIES OF NET CONTROL

- **PAGING VOLUNTEERS** - Net control is responsible for activating the volunteer pagers at least 5 minutes prior to the net. If net control is unable to activate the paging system, he/she should make arrangements with staff to activate the pagers.
- **NET SCRIPTS AND LOG SHEETS** - Net control is responsible for running the net according to the net control scripts and logging all check-ins.
- **EXERCISES** - Net control is responsible for arranging for or providing exercises and/or training for the net
- **NET SCRIPTS AND LOG SHEETS** - A copy of net scripts and log sheets are provided as part of this package (see following sheets) for Public Safety and ARES Nets.



Handling Radio Traffic



TACTICAL TRAFFIC:

Use of sector names followed by amateur call signs as required by the FCC is encouraged. This is an efficient method of maintaining control of the net. All traffic should be concise and to the point. Long conversations are discouraged since it may hinder higher priority Traffic. No station should leave the net or the proximity of a radio without informing net control. Standard traffic prioritization is used in passing tactical traffic.



Standard Traffic Prioritization



EMERGENCY - A message having life or death urgency to any person or group of persons. This includes official messages of welfare agencies during emergencies requesting supplies, materials or instructions vital to the relief of stricken populace in emergency areas.

PRIORITY - Important messages that have a time limit. This includes official messages not covered in the emergency category and notification of injuries in a disaster area.

WELFARE - A message that is either an inquiry as to the health and welfare of an individual in the disaster area or an advisory or reply from the disaster area that indicates all is well.

ROUTINE - In normal times, most traffic will have this designation. In times of emergency, routine traffic will be handled last.



Net Protocol



Directed Nets

- Never check in to state your unavailability to participate in the net
- All traffic on a directed net is controlled by the Net Control Operator
- There should be no station-to-station traffic on a directed net
- Any change of status should be requested of net control
 - Units should not change location without direction from NCO
 - Units should inform the NCO if away from the radio
 - Units should inform the NCO if they need to leave the net for any reason.
- There should be no “channel hopping” to talk to another unit unless permission is granted by the NCO
- Keep all transmissions concise and to-the-point



Incident Command System



- **COMMAND** - Controls the incident and response effort
- **SAFETY** - Advisor to command - can override command if danger to lives is possible.
- **LOGISTICS** - Controls personnel and materials required to provide response.
- **COMMUNICATIONS** - Provides communications at command's order to dispatch center or EOC.
- **PUBLIC INFORMATION** - Handles releases to press and general communication with public.

These officers are selected by the Incident Commander and report directly to incident command.



Incident Command System



The ICS structure may be deployed, as the incident requires. The ICS system may be scaled to fit the “size” or scope of the incident. A large-scale incident may require resource managers in the Logistics Sector as well as a planning officer and financial managers in the Planning Sector. A small-scale incident may only require the structure shown on the previous page. The primary advantage to the ICS system is the ability to scale the system, as the incident requires.



Severe Weather Response



- **Severe Weather**
 - Greater than 58 mph winds
 - Greater than 1 inch hail
 - Tornadoic Vortex Signature (TVS)
- **Rules of Spotting**
 - Never spot from inside the path of the storm
 - Always ensure that there is an escape path in the event of danger
 - Always stay on ground that will not be affected by flash flooding
 - Never drive through water running over a road.
 - Never leave your location without informing the net control operator
 - Report sightings by compass bearing (N, NNE, NE, ENE, E, etc.)



Severe Weather Response



- **Rules of Spotting (Continued)**
 - Report hail size by inches diameter
 - Use “best guess” on wind speed based on swaying trees, etc.
 - Stay clear of overhead power lines
- **Things to Look for at Night**
 - Arcing power lines may be a sign of a tornado, especially if there is a defined pattern to the locations
 - Lightening strikes may light the sky enough to see a tornado
 - Take extra precautions at night - rain and poor visibility due to darkness may be a dangerous combination



Severe Weather Response



Beaufort Scale for Wind Speed Estimation

The Beaufort Wind Scale is named after Sir Francis Beaufort, an admiral in the British Navy. He developed the scale in 1805 in order to estimate wind speed by noting how sails move in the wind. It turned out to be a great help and was later adapted for use on land.

Force 0

Strength: Calm

Speed: Less than 1 mile per hour (mph), less than 2 kilometers per hour (kph)

Observations: Tree leaves don't move, smoke rises vertically, sea is calm

Force 1

Strength: Light Air

Speed: 1-3 mph, 2-6 kph

Observations: Tree leaves don't move, smoke drifts slowly, sea is lightly rippled



Severe Weather Response



Force 2

Strength: Slight Breeze

Speed: 4-7 mph, 7-11 kph

Observations: Tree leaves rustle, flags wave slightly, small wavelets or scale waves

Force 3

Strength: Gentle Breeze

Speed: 8-12 mph, 12-19 kph

Observations: Leaves and twigs in constant motion, small flags extended, long un-breaking waves

Force 4

Strength: Moderate Breeze

Speed: 13-18 mph, 20-29 kph

Observations: Small branches move, flags flap, waves with some whitecaps



Severe Weather Response



Force 5

Strength: Fresh Breeze

Speed: 19-24 mph, 30-39 kph

Observations: Small trees sway, flags flap and ripple, moderate waves with many whitecaps

Force 6

Strength: Strong Breeze

Speed: 25-31 mph, 40-50 kph

Observations: Large branches sway, flags beat and pop, larger waves with regular whitecaps



Severe Weather Response



Force 7

Strength: Moderate Gale

Speed: 32-38 mph, 51-61 kph

Observations: Whole trees sway, large waves ("heaping sea")

Force 8

Strength: Fresh Gale

Speed: 39-46 mph, 62-74

Observations: Twigs break off trees, moderately high sea with blowing foam

Force 9

Strength: Strong Gale

Speed: 47-54 mph, 75-87 kph

Observations: Branches break off trees, shingles blown from roofs, high crested waves



Severe Weather Response



Force 10

Strength: Whole Gale

Speed: 55-63 mph, 88-101 kph

Observations: Some trees blown down, damage to buildings, high churning white sea

Force 11

Strength: Storm

Speed: 64-74 mph, 101 kph-119 kph

Observations: Widespread damage to trees and buildings, mountainous waves

Force 12

Strength: Hurricane

Speed: 75 mph or greater, 120 kph or greater

Observations: Severe and extensive damage



New Wind Chill Chart

		Actual Temperature °F														
		40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	
Wind Speed (MPH)		Wind Chill Temperature °F														
		Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25
		5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40
		10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47
		15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51
		20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55
		25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58
		30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60
		35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62
		40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64
		45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65



SKYWARN Spotter Deployment



- SkyWarn spotters shall deploy as directed by net control
- Spotters should always notify net control upon arrival at their spotting location.
- Spotters should not leave their assigned spotting location without permission from net control.
- Spotters should always identify an escape path from their spotting location in the event of an immediate threat.
- Spotters should notify net control when they arrive safely at home.

Note: If for personal safety reasons, spotters must relocate, they should relocate immediately and notify net control upon reaching a safe location.



Marine Response



- **Trailing Checklist**

- Perform walk-around check prior to trailering
 - Verify all tie-downs are in place and tight
 - Verify motor is tilted and locked up
 - Verify bow is secure
 - Tie down or stow all loose items in the boat
 - Verify black storage box is in the boat
- After hitching, cross chains under the tongue of the trailer to form a cradle in the event the hitch breaks or releases
- Check trailer lights (right turn, left turn and brake)
- Check boat gas status
- Verify spare propeller is in the boat
- Verify river charts are in the boat



Marine Response



- **Ramping Checklist**

- Install and check radios and other equipment prior to ramping
 - Check battery status prior to ramping
 - Check oil status prior to ramping
 - Check lights prior to ramping
 - Watch for power lines and other obstacles (the communications antennas are taller than the boat)
 - Attach bowline prior to ramping
 - Check impeller operation (water pump) after starting motor
 - Ensure adequate PFDs in the boat for crew



Search and Rescue



- **Ground Search**
 - Do not disturb or touch any potential evidence
 - Maintain distance from other rescue personnel in the grid pattern
 - Carefully watch the ground for clues while walking the grid
 - Candy/Gum wrappers
 - Articles of clothing
 - Footprints
 - Follow the instructions of the commanding agency
 - Report only your location and observation briefly and concisely



HAZMAT Response



- ECA is not chartered to “respond” to a HAZMAT incident except in support of EMA.
- Hazmat reporting should consist of the following:
 - Placard Type
 - Placard Number
 - Location of spill or incident
- Pointers
 - Stay **uphill** and **upwind** of the incident
 - Do not approach the incident
 - Do not cross through plumes or smoke from the incident



Cardio-Pulmonary Resuscitation



- **Pre-resuscitation checks**
 - Attempt to get verbal response from the victim
 - Check for breathing. **DO NOT** apply CPR if the victim is conscious or breathing.
 - Have someone contact EMS
- **Application of CPR**
 - Breathe twice and check pulse
 - If no pulse, breathe twice and perform 15 chest compressions
 - 1.5 to 2.0 inch compression (adult)
 - 60 compressions per minute
 - Breathe twice and repeat compressions
 - Continue for four cycles and check for pulse. If no pulse, continue CPR



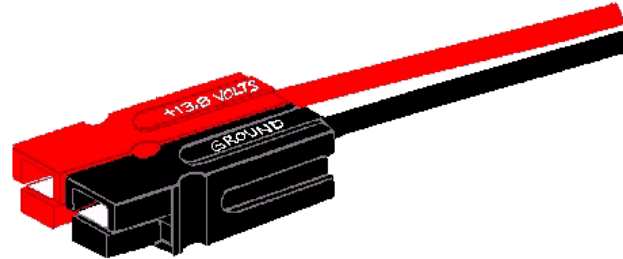
Grab-N-Go Kits



- Radio(s) as needed
- Radio Accessory kit including microphone, key, etc.
- Feed-line for connecting the radio to the antenna.
- Power supply for the radio(s) if needed.
- VSWR meter
- Folding table
- Notebook
- Flashlight and batteries
- Push-up pole with guy wires
- Toilet paper
- Antenna analyzer
- Tool kit (including needle-nose and diagonal cutters, Philips and slot screwdrivers)
- Refer to Survival Kit pages for personal items
- Feed-line jumpers (3-4 foot)
- Antenna tuner
- Desk lamp
- Outlet strip
- Pencils
- Antenna(s)
- Extra guy anchors and rope
- Maps
- VOM



ARES Connector



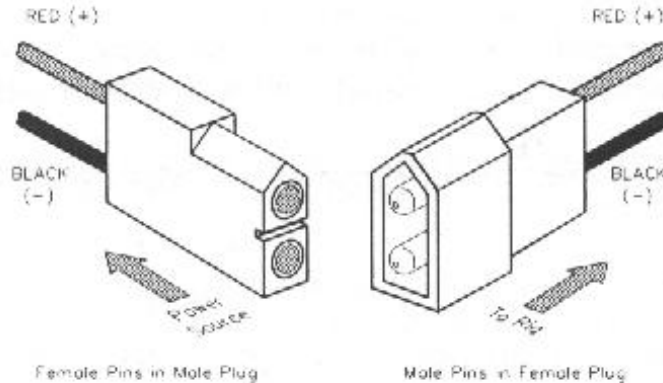
Anderson Powerpole Connector

Powerpoles® are both polarized and genderless, so you never have to worry about male vs. female or positive vs. negative. Connections can be quickly made and remade in the dark without any hassles and the 30 amp connector can easily handle 100 watt radios. Housings should be mated according to the diagram above, viewing from the contact side (opposite the wire side), tongue down, hood up, RED on the LEFT, BLACK on the RIGHT. Use a 3/32-inch-diameter roll pin, 1/4 inch long, to keep the housings from sliding apart.

	Complete Connector	Housing	Contact	Roll Pin
30 A	#1330G4	#1327G6	#1331	#110G16
Black	#1330	#1327	#1331	#110G16
Red				



ARES Connector



MOLEX Series 1545 connector for use in promoting compatibility and interchangeability among personal VHF/UHF radio equipment at disaster sites. Polarity should always be verified prior to connecting to radios and power supplies.

If the Molex connector is chosen, adapters to the Anderson Powerpole connectors is recommended



Emergency Phone Numbers



State Police Troop C	314-340-4000
St. Charles City Police	636-949-3300
St. Peters City Police	636-278-2222
St. Charles County Sheriff	636-949-3005/0809
Ambulance	636-928-6767
National Weather Service	636-447-1876/1733
US Coast Guard MSO	314-539-3091
County Dispatch & Alarm	636-978-8396
Missouri Water Patrol	573-751-3333
SEMA Duty Officer	573-751-2748



Emergency Phone Numbers



ARES District C Emer. Coord.	Jeff Young	636-928-7348
ARES SCC Emergency Coord.	Bill Grimsbo	636-946-7019
County Highway Department	Craig Taikowski	636-949-7142/7305
County Building Department	Dave Hammond	636-949-7345
US Army Corp of Engineers	River Gauge	314-291-8039

Use of the River Gauge number should be restricted to use by Operations only during flood conditions.



Emergency Repeater Directory



Agency/Club Name (Callsign)	Frequency (Offset) / CTCSS
St. Charles County ARES (W0ECA)	145.490(-) / 141.3 Hz
River's Bend ARC (K0RBR)	145.410(-)
ECA/ARES Link (W0ECA / W0SMI)	444.475(+) / 77 Hz
KB3HF Repeater (ARES Tactical)	444.275 (+) 141.3 Hz
St. Charles ARC / NWS (WB0HSI)	146.670(-)
St. Charles ARC (WB0HSI)	145.330(-)
St. Louis County ARES (W0DCW)	146.850(-)
St. Charles County ARES Ground	146.595 Simplex – HVTAC7
St. Charles County ARES Ground	146.505 Simplex – HVTAC6
St. Charles County ARES Ground	446.075 Simplex – HUTAC7
St. Charles County ARES Ground	446.100 Simplex – HUTAC8



Emergency Interoperability



Interoperability refers to the ability of ARES groups and individuals involved in a coordinated response to communicate with each other.

In the event of an emergency or exercise, an interoperability plan can address connectivity issues and increase the effectiveness and speed of response.

The idea is that if these frequencies are programmed into radios, flexibility exists to work as a communicator anywhere in the state. The plan is intended to augment existing communications structures, not completely replace them. Operational repeaters and local simplex frequencies should be used, however, HVCALL and HUCALL should be monitored.

The APRS/PACKET/DATA frequencies are meant to supplement existing plans and the Missouri Emergency Packet Network (MEPN)



Emergency VHF Interoperability



Mnemonic	TX CTCSS	Frequency
HVCALL	CSQ	146.550 Statewide
HVTAC0	100.0	147.495 Primary
HVTAC1	100.0	145.600 Alpha
HVTAC2	100.0	145.650 Bravo
HVTAC3	100.0	145.700 Charlie
HVTAC4	100.0	146.400 Delta
HVTAC5	100.0	146.445 Echo
HVTAC6	100.0	146.505 Foxtrot
HVTAC7	100.0	146.595 Golf
HVTAC8	100.0	147.405 Hotel
HVTAC9	100.0	147.450 India
HVSTAGE	CSQ	147.555 Statewide
HVPACKET	CSQ	144.950 Statewide
HVAPRS	CSQ	144.990 Statewide
HVDATA	CSQ	144.910 Statewide



Emergency UHF Interoperability



Mnemonic	TX CTCSS	Frequency
HUCALL	CSQ	446.000 Statewide
HUTAC1	100.0	445.900
HUTAC2	100.0	445.925
HUTAC3	100.0	445.950
HUTAC4	100.0	445.975
HUTAC5	100.0	446.025
HUTAC6	100.0	446.050
HUTAC7	100.0	446.075
HUTAC8	100.0	446.100
HVAPRS	CSQ	446.150
HVDATA	CSQ	446.200



St Charles County Fire / Ambulance Channel Allocations



Ch	Frequency	Channel Use	Title/Tag	Ch	Frequency	Channel Use	Title/Tag
1	154.250	F/A Dispatch	DISP	13	154.295	Command D	COM D
2	155.940	Talk Back - Disp	OPS	14	154.265	Command C	COM C
3	154.085	Tactical Channel	OPS 3	15	155.325	Command B	COM B
4	158.835	Tactical Channel	OPS 4	16	153.830	Command A	COM A
5	158.865	Tactical Channel	OPS 5	17	155.7525	Nat. Inter- OP	VCALL
6	154.445	Tactical Channel	OPS 6	18	151.1375	Nat. Inter- OP	VTAC 1
7	154.515	Admin Channel	ADMIN	19	154.4525	Nat. Inter – OP	VTAC 2
8	154.280	Fire Mutual Aid	MUT AID	20	158.7375	Nat. Inter – OP	VTAC 3
9	155.835	Joint Ops / EMA	EMA	21	159.4725	Nat. Inter – OP	VTAC 4
	Ch 10 – 12	Local Option		22	154.680	MTAC Channel	MTAC



Useful Scanner Frequencies



Frequency	Tone	Agency	Frequency	Tone	Agency
162.550	CSQ	National Weather	159.285	173.8	Lincoln Co. Ambulance
155.295	141.3	SCC Search & Rescue	155.280	151.4	Franklin Co. Fire Main
155.595	CSQ	Missouri Water Patrol	154.430	79.7	Washington Fire
155.730	CSQ	Sheriff's Net	155.160	123.0	Washington Ambulance
155.475	CSQ	Federal Mutual Aid	154.325	CSQ	North Co. Fire Dispatch
148.150	CSQ	Civil Air Patrol	154.400	CSQ	North Co. Fire Ops
156.800	CSQ	Marine Chan 16 (Call)	154.220	CSQ	Central Co. Fire
156.850	CSQ	Marine Chan 17 (EMA)	151.460	CSQ	Central Co. Fire Ops
157.050	CSQ	Marine Chan 21	153.890	CSQ	South Co. Fire Channel
157.100	CSQ	Marine Chan 22 (USCG)	155.235	CSQ	South Co. EMS Channel
157.075	CSQ	Marine Chan 81	154.130	CSQ	STL City Fire Dispatch
154.205	CSQ	Warren Co. Fire Main	153.950	CSQ	STL City Fire Main
155.295	151.4	Warren Co. Ambulance	155.175	CSQ	STL City EMS
158.805	141.3	Lincoln Co. Fire			
154.145	173.8	Winfield/Foley Fire			



Emergency Survival Kits



Cold Weather Kit	Warm Weather Kit
Flares (self lighting)	Water (at least two gallons)
Blanket (wool or good insulating material)	Food bars
Dry Socks (wool or good insulating material)	Light colored clothing
Gloves (mittens preferred)	Flashlight with extra batteries
Candles or other sources of heat	Radio with extra batteries
Tarpaulin (shelter from snow and wind)	Waterproof matches
Food bars	Tarpaulin (shelter from rain)
Water (at least two gallons)	Flares (self lighting)
Extra dry clothes	Insect repellent
Boots (insulated)	Sun Screen (SPF 15 minimum)
Radio with extra batteries	
Flashlight with extra batteries	



ARES Net Activation



- **Standard Net Activation**
 - The ARES net is activated for training every Monday night at 2030 hours.
- **Emergency Net Activation**
 - Emergency nets are activated in support of the County SkyWarn program or in support of County agencies as directed by the ARES Emergency Coordinator or Assistant Coordinator.
- **SkyWarn Spotter Deployment**
 - SkyWarn spotters are deployed in support of the County SkyWarn program at the direction of the ARES Emergency Coordinator or Assistant Coordinator.



Standard Net Activation



ECA/ARES 145.49 Repeater pages automatically for Nets on Monday Nights.

Page All Units on 155.835 Repeater (Page Code 530).

Page•Announce: The weekly St. Charles County ARES Net will begin at 2030 hours tonight on the 145.49 Repeater. This is EMA____. KNFR268.

Use the following text for net activation:

“Calling the St. Charles County Amateur Radio Emergency Service Net. This is Net Control (your FCC callsign). This net is called every Monday evening at 2030 hours local time. When ARES support is requested for an emergency or SkyWarn situation, this net will be activated by the St. Charles County ARES Emergency Coordinator or Assistant Coordinator. This weekly net is open to all ARES and Non-ARES Amateur Radio Operators. This is a directed net. Protocol requires that you notify net control if you must leave the air before the net is closed. All operators please check in now, advising your callsign, name, geographic location, pager status if you have been issued a pager, and if you have any traffic or announcements for the net.”

Net control must promptly acknowledge and record all check-ins.



Standard Net Activation



Repeat the following as many times as seems necessary:

"Are there any other amateur radio operators wishing to check into the net."

Net control must promptly acknowledge and record all check-ins.

Net control will acknowledge any formal traffic that is listed with the net in order of precedence. (Priority, Health/Welfare, or routine.) All informal traffic will be recognized next. After all traffic has been transmitted and acknowledged, net control will make any important ARES announcements.

Net control will close the net with the following message:

"Since there is not further traffic, this net is now closed. Thank you for your participation and support. This is Net Control (your FCC callsign) closing the net at _____ hours local time and returning the repeater to normal use."

Please place the net log in registration book at the EOC at your earliest opportunity.



Emergency Net Activation



Page all units on ECA/ARES 145.49 Repeater. DTMF paging codes are: A*111 for Wx Net; A*222 for ARES Emergency Net; and A*333 for Special Net, Announce net purpose.

Page all units on 155.835 repeater (Page Code 530) .

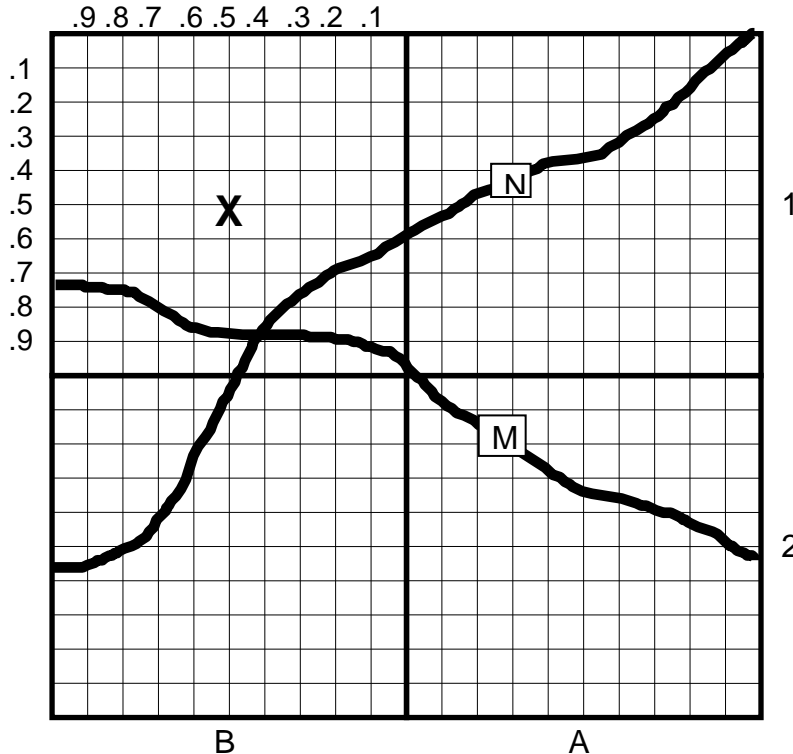
Use the following text for net activation: “Calling the St. Charles County Amateur Radio Emergency Service Net. This is net control _____. This net is being activated to support (*state nature of emergency or SkyWarn activity*). All operators checking into the net are requested to give their callsign, name, geographic location and availability for deployment. If an operator must leave the net before it is closed, notify net control before leaving. All ARES personnel please check in now.”

When all check-ins are complete, state the nature of the emergency and give assignments to each operator, as directed by the ARES Emergency Coordinator or EOC Incident Commander.

Operators should not relocate or leave the net without direction from net control. Protocol requires that operators notify net control if they must leave the air before the net is closed.



Wunnenberg Map Reading



EACH OF THE INNER LINES IS ONE TENTH OF A GRID SQUARE AREA. THE WUNNENBERG MAP IS LAID OUT IN THE LARGER SQUARES.

THE PROPER METHOD OF READING THE MAP IS: PAGE 33, B.5, 1.5 TO DESCRIBE THE 'X' LOCATION ON THE MAP.



ECA Officers



<u>2009-2010 Officers</u>	<u>2010-2011 Officers</u>
<p>President: Bill Grimsbo, N0PNP Vice President: Art Goodall, W0KG Secretary: Roy Scott, KB0PNR Treasurer: Jeff Young, KB3HF Board: Wayne Ault, WD6EZQ Ambrose Duello, KA0FSW Joe Yanko, N0UHJ</p> <p>Place Officers Stamp Here</p>	<p>President: Bill Grimsbo, N0PNP Vice President: Art Goodall, W0KG Secretary: Mike Moore, WD0EFP Treasurer: Jeff Young, KB3HF Board: Wayne Ault, WD6EZQ Ambrose Duello, KA0FSW Dave Kampmann, WS0Z</p> <p>Place Officers Stamp Here</p>