OPERATING PROCEDURES
June 15, 2025

Mendocino County Amateur Radio Communications Service

1.0 SCOPE

This document establishes the operating procedures for the Mendocino County Amateur Radio Communications Service (McARCS). This county wide service will be activated in the event of a natural or man-made disaster or emergency making normal communications systems overloaded or unavailable. In preparation for activation in the event of a disaster, advance organization and practice for this event are conducted including providing communications for various public service activities involving other volunteer organizations and individuals.

2.0 MISSION

The mission of this system shall be to provide amateur radio communications service as follows:

2.1 Emergency Reporting.
Provide emergency communications services for residents to report critical safety conditions to fire, medical, or law enforcement agencies in the event that the telephone 911 system is inoperable.

2.2 Private Agencies.
Provide communications services for private disaster relief organizations including, but not limited to: the American Red Cross, the Salvation Army disaster relief corps, and the Southern Baptist disaster relief corps.

2.3 Volunteer Organizations.
Provide communications services to volunteer organizations in such activities as races, parades, charitable fund raising events and Community Emergency Response Teams for example..

2.4 Individuals.
Provide health and welfare communications information services for the purpose of locating lost or missing individuals and relaying information about such individuals to family members and others located inside or outside the disaster area.

3.0 ORGANIZATION

3.1 Local Nets
This system should be organized at the local level with each city, town, or community identifying a service area which may be a city or a portion of a city or a identifiable residential area or a group of identifiable towns and/or identifiable residential areas. This community may be affiliated with a local fire department or district. Each local net should adopt a tactical call sign identifier that indicates the community name.

Each community should practice communications at the local level using a simplex frequency or low level local repeater. Practice sessions should ideally be conducted on a weekly basis with members rotating as net control stations. All members should be able to hear and transmit to the net control station. Large area repeaters ideally should not be used for these local nets.

A schedule of local net frequencies and schedules shall be maintained on the McARCS web site (www.mcarcs.org) on the Nets Page. This shall be the responsibility of the McARCS web master or a designated alternate.

3.0 ORGANIZATION (cont)

In the event of a communications emergency, the local nets should be activated as required. The destination of any message traffic originated at the local level should be either the local agency served or passed on a suitable area or central net to an ultimate destination.

3.2 Area Nets
Local community nets should communicate between themselves on an area net using an area coverage repeater as required.

A list of designated area repeaters shall be maintained on the McARCS web site (www.mcarcs.org) on the Nets Page. This shall be the responsibility of the McARCS web master or a designated alternate.

3.3 County Wide Net
A regular county wide net should be carried out on the County-wide linked repeater system as shown on the www.McARCS.org web site on the Nets page.

A list of the all the wide area repeaters in Mendocino County shall be maintained on the McARCS web site (www.mcarcs.org) on the Nets Page. This shall be the responsibility of the McARCS web master or a designated alternate.

In the event of a sensed county wide emergency, initial contact should be made on this system and area or local traffic transferred to the other nets as appropriate.

3.4 High Frequency (HF) Net
In the event of a communications emergency, a high frequency net should be activated as required. The following HF nets operate a weekly drill as indicated and should be activated when necessary. These nets will be used for traffic between amateurs and not between Emergency Operations Centers.

North Coast Emergency Net	Sundays 8:00 AM	3855 kHz
Mendocino-Sonoma Net	Tuesdays 7:30 PM	3925 kHz, alternate 7245 kHz

3.5 Adjacent County Repeater Access

For adjacent county repeater access, refer to the North Amateur Relay Council of California (NARCC) at NARCC - Northern Amateur Relay Council of California
You can also refer to the McARCS web site at repeaters [Mendocino County Amateur Radio Communications Service]

3.6 Other Traffic There are several well located amateur stations that are situated in such a way to be able relay VHF radio traffic between Mendocino County and the other counties listed above if required as well as providing HF message traffic service.

4.0 OPERATOR TRAINING and IDENTIFICATION

4.1 Training

Operators at the local net level are expected to participate in weekly net practice sessions as often as possible. Any operator in the local area may visit a net when invited to do so and request to be added to the net roll call list, if any.

Each local net should establish a day and time for practice net operations. Day and time may be changed as needed by local agreement

4.0 OPERATOR TRAINING and IDENTIFICATION (cont)

Net sessions should be conducted by initial roll call or check in request and call for traffic. No proxy check-ins, early check-ins, or short time check-ins should substitute for an actual check-in. Each local net may establish whatever procedures appropriate for their area.

Net control stations may simulate emergency operations by calling for specific items of information from each station in turn following the initial check-in roll call. For example, information may include station location, station willingness to report for duty, local traffic conditions, emergency preparedness measures, or whatever seems appropriate.

Net control duties should be rotated between members of the local area net as much as possible so that all have a chance to learn and practice net control duties. Each local net should designate a net control operator for the next week's exercise and to be available should emergency operations need to be initiated in the next week.

Area nets and the county wide net should by be similarly exercised on a regular basis.

4.2 Operator Identification

Anyone who is requested to staff a location in an emergency should have a government issued photo ID card such as a drivers license and also a copy if their Federal Communication Commission issued amateur radio license.
Operators under MACS activation will have a MACS ID card issued.

4.3 Digital Message Training

All operators are encouraged to become familiar and proficient with digital messaging using the free-for-download software programs fldigi and flmsg. Consult the article on the McARCS web site under RESOURCES and then Operating Tips entitled "Digital Messages via Ham Radio".
https://www.mcarcs.org/doku.php?id=operating_tips

Operators may also want to read the ARRL article on Narrow Bandwidth Emergency Messaging software: http://www.arrl.org/NBEMS

In it's simplest form the only equipment required is a VHF 2m radio and a portable computer; laptop, notebook, or tablet. For sites receiving such messages, a simple black ink or toner printer with connections via cable or WiFi is recommended.

These programs are essentially equivalent to email via ham radio on a one-to-all basis. This ***is*** not the same a Winlink Express message which is email via ham radio and the commercial Internet service to a specific email address. Use of computer equipment and software will produce a legible and accurate message in a 21st Century format having a short transmission time from sender to receiver.

When so equipped, all operators are invited to participate in the weekly Digi Net on the day and time found on the NETS page.

5.0 AFFILIATIONS

5.1 Amateur Radio Emergency Service (ARES)

The American Radio Relay League (ARRL) has established the Amateur Radio Emergency Service (ARES). Although individuals may affiliate with the ARRL and the ARES, this service is not an ARES activity.

5.2 Auxiliary Communications Service (ACS)

The State of California Office of Emergency Services (OES) has established the Auxiliary Communications Service (ACS) to provide communication services to official government agencies in an emergency. Although McARCS may provide such communications services, it is not a unit of the State of California ACS.

5.3 Radio Amateur Civil Emergency Service (RACES)

The federal government has established the Radio Amateur Civil Emergency Service (RACES) to provide communications between government agencies in the event of a declared civil emergency. When so declared, communications may be only between registered RACES stations and no others.

The McARCS is not a part of any RACES operation in this county or any other county or area. MACS, by authorization from the Mendocino County Office of Emergency Services, is the designated RACES organization for Mendocino County

5.4 Radio Clubs, Associations, or Societies

The McARCS is not a part of any radio club, association, or society in this county or any other county or area. The facilities of any such organization including internet sites or newsletters may be used to communicate information to members or others at the sole discretion of said organization.

5.5 Mendocino County Office of Emergency Services
MACS is the ACS unit authorized by the Mendocino County Office of Emergency Services.

5.6 Mendocino Auxiliary Communications Service (MACS)

MACS is organized by the Mendocino County Office of Emergency Services (MCOES) as the appropriate organization for emergency radio communications for essential county services via amateur radio in the county. McARCS members may apply to become members of MACS by taking mandatory training in Incident Command System (ICS) procedures (which may be on-line) and pass a state background check. MACS identification cards may be issued by the county OES.

When MACS is activated, registered MACS operators will be considered as enrolled Disaster Service Workers (DSW) for the purposes of coverage with Workers Compensation Insurance and for immunity from liability resulting from their actions while performing their services in accordance with the state DSW Statues.

When MACS is activated by the Mendocino County Office of Emergency Services in support of the county Emergency Operations Center, the subsequent net control operator may use the call sign KA6EOC. The net control operator may assign tactical call signs to participating stations as appropriate.

5.0 AFFILIATIONS (cont)

5.7 American Red Cross (ARC)

McARCS members that have had training or experience in ARC shelter operations and have passed an ARC national background check may be assigned as communications operators to a Red Cross shelter when activated. McARCS shall maintain a record of operators who have had such training and background check.

While operating in support of an ARC shelter, the subsequent net control operator may use the call sign W6ARC. Shelters may have tactical call signs assigned depending on location and may also use call sign W6ARC with a dash number assigned by the net control operator.

It should be noted that Red Cross communications services have been largely migrated to a smart-phone application on cell phones controlled by shelter managers. That assumes that cell phone service is available at the shelter location, which we know is not always true. When that fails there is always amateur radio.

6.0 ACTIVATION

The Mendocino County Amateur Radio Communications Service (McARCS) may be activated at any level depending on the nature of the disaster or emergency. Participants are urged to monitor or scan on both applicable McARCS net frequencies and public safety agency frequencies in order to be aware of developing situations that may result in a communications emergency.

6.1 Level 1, Activation by Public Safety Agencies

When activation at the county wide level is required, the Mendocino County Office of Emergency Services (OES) Coordinator will contact one or more of radio operators previously identified to the County OES by MACS and these operators will activate the appropriate nets. This may result in all nets previously identified being activated. Activation may be by telephone tree if available or by broadcast on any or all of the central area net repeaters and/or local net simplex frequencies. This is not necessarily a MACS net.

When activation at the local level by fire department or police authorities is required, the local official should contact one or more of the local radio operators identified previously and these operators will activate the appropriate nets. This requires the active participation of both the local amateur radio operators and the local public safety officials. This may result in the local nets being established and may or may not involve area and central net activation.

6.2 Level 2, Disaster Activation

This level of activation is as the result of a sudden and unexpected disaster that disrupts all levels of normal telephone communications. The most likely cause of this disaster in Mendocino County is a major earthquake although a sudden and violent wind storm can also result in a local disaster with interruption of telephone communications services.

When this occurs, the local community and/or other nets as identified in section 3 should be activated automatically and immediately commence a disaster damage assessment activity and be prepared to communicate any emergency conditions requiring public safety response to the local fire station or other public safety agency. Should any such emergency conditions be evident, the activation level will probably be moved up to level 1 at the local community first.

Amateur radio operators may be requested to accompany CERT or Red Cross units in their duties in the field to provide essential and safety related communications.

6.3 Level 3, Activation by Other Agencies

Other public or private agencies may activate the McARCS by request to a designated contact person. Other than the agency involved, this may be equivalent to level 1.

6.4 Level 4, Planned Activation

This level of activation is appropriate for planned exercises such as communications support for races, walk-a-thons, charity fund raising events, and drill exercises for CERT groups. This level of activation is also appropriate for the weekly scheduled nets and for planned wide area communications exercises. In general, all participating operators will be informed in advance of date, time, and communications facilities to be exercised.

7.0 MESSAGE FORMATS

Served agencies such at those identified in section 2 of this document may send or receive messages over the McARCS at either the local community or central net locations as appropriate. Message traffic should be provided to the served agencies in a form appropriate to the agency and the priority required. Runners or other message delivery methods may be used as appropriate.

All messages should be logged by the operators with date, time, message sender, message recipient, stations involved, and a brief notation of type of message.

Messages carried by the McARCS on behalf of the served agencies fall into one of several categories:

7.1 Emergency or Tactical Messages requiring immediate action should be delivered in written form to and from the radio operators and the served agency but may be in expedited format requiring only the date and time plus the intended recipient and sender as appropriate plus, of course, the requested action or response. These messages may be transmitted by voice.

Care should be taken to not voice any private information such as proper names or actual emergency conditions. During exercises, such information shall be accompanied by the phrase “This is a drill.”

7.2 Written Messages using an agency or general message form. An example of this type of form would be the ICS-213 form or any of the American Red Cross forms. This type of message form should be used only when both stations have copies of the message form.

When this is not possible, any messages of this type requiring an intermediate relay involving a station other than the originating or receiving station should be transmitted by voice using the standard universal radiogram format as in part 4 below.

Care should be taken to not voice any private information such as proper names or actual emergency conditions. During exercises, such information shall be accompanied by the phrase “This is a drill.”

The most efficient method of transmission is via digital means using fldigi and flmsg software when possible. This method precludes casual radio listeners not having the digital messaging software from intercepting the message.

Messages received may be printed or saved in pdf for attachment to local email service.

7.3 Formatted Messages having specific entry blanks for specific information and then only when all stations handling the message have copies of the specific form. An example of this form would be the Mendocino County Health and Human Services Agency (HHSA) Situation Report Quicksheet reporting form.

Some of these forms may have been adapted specifically for digital transmission but may have a voice transmission component involving a system number and a status letter associated with that system. When transmitting by voice speak only the system numbers not fully functional and the associated system status letter. These forms should not be used when the number and letter system is not available.

When this is not possible, any messages of this type requiring an intermediate relay involving a station other than the originating or receiving station should be transmitted by voice using the standard universal radiogram format as in part 4 below.

Care should be taken to not voice any private information such as proper names or actual emergency conditions. During exercises, such information shall be accompanied by the phrase “This is a drill.”

7.0 MESSAGE FORMATS (cont)

7.4 Radiogram Messages All other messages including the reporting of non-emergency status, ordering of supplies, requesting personnel, processing health and welfare inquiries and reports, and all non-emergency messages should be transmitted over the radio links using the standard universal radiogram format with all the standard message tracking features including complete addressing, message numbering, word count, station logging, and other error detecting and correcting features.

Voice transmission may be used with the sending operator speaking slowly enough as to allow for written recording and pausing for possible repeat words or spelling.

Care should be taken to not voice any private information such as proper names or actual emergency conditions. During exercises, such information shall be accompanied by the phrase “This is a drill.”

Messages received may be printed or saved in pdf for attachment to local email service.

8.0 DEPLOYMENT AND EQUIPMENT

Activated McARCS members may be requested to report to various sites for service. In some cases, additional equipment may be required.

8.1 Fixed Sites. These sites are located in buildings which or may not have equipment installed. These including hospitals, health care clinics, district offices, or agency headquarters. In some places, the equipment will not be found when the operator arrives due to unknown removal. There might not be a suitable desk location for message handling including logging and recording on paper or by computer. The sites may be noisy with multiple talkers or noisy equipment nearby.

The facilities may have licensed amateur radio operators on staff but, in case of an actual disaster, these operators may be required to perform their normal duties. In most cases, these operators will have not been operating in normal nets and will not be accustomed to normal net operating procedures. Trained McARCS operators will be required to operate at these sites and even train licensed amateur radio operators on staff.

The McARCS operators assigned to these sites must be prepared to set up an operating station including radio, power supply, antenna, and computer if required. Dual headphones (2 pair) will be found useful as the sites are often noisy.

8.2 Temporary Sites. These sites are set up to handle emergency or disaster communications on a temporary basis or non-disaster communications. These may include shelters or decontamination stations or temporary disaster command posts. In a non-disaster situation, these sites may be at check points or rest stops. In most cases these sites will not have emergency AC power or antennas installed.

The McARCS operators assigned to these sites must be prepared to set up an operating station including radio, power supply, and antenna. Without AC power available, the station must be operable from deep discharge batteries preferably with a Boost to 13.8V Converter.

8.3 Equipment Required. McARCS members should maintain a list of equipment required for deployment to any site. Some may wish to maintain a Go-Bag or Go-Box to store this equipment in the event of deployment while other may just maintain a list or readily available equipment. At the very minimum, the list should include the following equipment:

- 2M FM Mobile Transceiver. Dual-band with cross-band repeater capability preferred equipped with Anderson Power-Pole connectors
- AC Power Supply for Mobile Transceiver with Anderson Pole-Pole Connectors
- Optional Deep-cycle battery with 13.8V Boost Converter for Mobile Transceiver
- Power cables with Anderson Power-Pole connectors
- Portable Antenna with temporary ground or flat roof placement
- Coaxial Cables as required
- Coaxial adapters for multiple lengths and/or other types of cables
- Headphone adapter for mobile transceiver, dual headphone
- Headphones or earbugs, two pair

Suggested for fixed sites::
Portable computer with NBEMS installed
Portable printer with cable or WiFi connectivity

Optional:
Dual-band Hand Held Transceiver

A schematic diagram of a suggested dual-headphone adapter is shown below. This circuit can be constructed in any un-powered speaker enclosure with a speaker compatible with the radio and can be used with any modern headphones or earbugs having an impedance from 20 to 40 Ohms. This circuit with the resistors shown is not applicable for use with old-style headphones with a 4 to 8 ohn impedance.

Plug and jacks suitable for the equipment should be used. Most modern radios will use a 3.5 mm (1/8 “) plug and many modern headphones or earbugs will use a 3.5 mm (1/8”) jack. Some headphones and earbugs will use a 2.5mm (.1”) jack. Your equipment may vary and you may have to use an adapter.