

# Topic 3: Amateur Radio Emergency Communications Organization and Systems

EC-001:  
Section 1: The Framework,  
How You Fit In



**ARRL**  
The National Association for  
**Amateur Radio®**



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## Objectives

### Welcome to Topic 3.

Emergency communications organizations are what make an emergency communications response possible. After reading this material, you will be able to identify the different organizations and systems that make it happen. This unit introduces several of the largest and best-known organizations, and several related emergency communications and public warning systems.

### Student preparation required:

None.

## Introduction

Imagine a random group of volunteers trying to tackle a full-scale disaster communications emergency, working together for the first time. They do not know each other well and have very different approaches to solving the same problem, and half of them want to be in charge.

This scenario is not too far-fetched. Just ask anyone who has been around emergency communications for a while — they have seen it! This course is intended to help solve that



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problem.

Emergency communications organizations provide training and a forum to share ideas and develop workable solutions to problems in advance of a real disaster. This way, when the time comes to assist the partners, you will be as prepared as you can be. The response will occur more smoothly, challenges will be dealt with productively, and the partners' needs met.

Some of the organizations discussed here do not directly involve Amateur Radio operators but knowing about them and how they might assist in an emergency may be helpful. Your partners may utilize or interact with one or more of these systems or organizations.

### **Amateur Radio Emergency Service® (ARES®)**



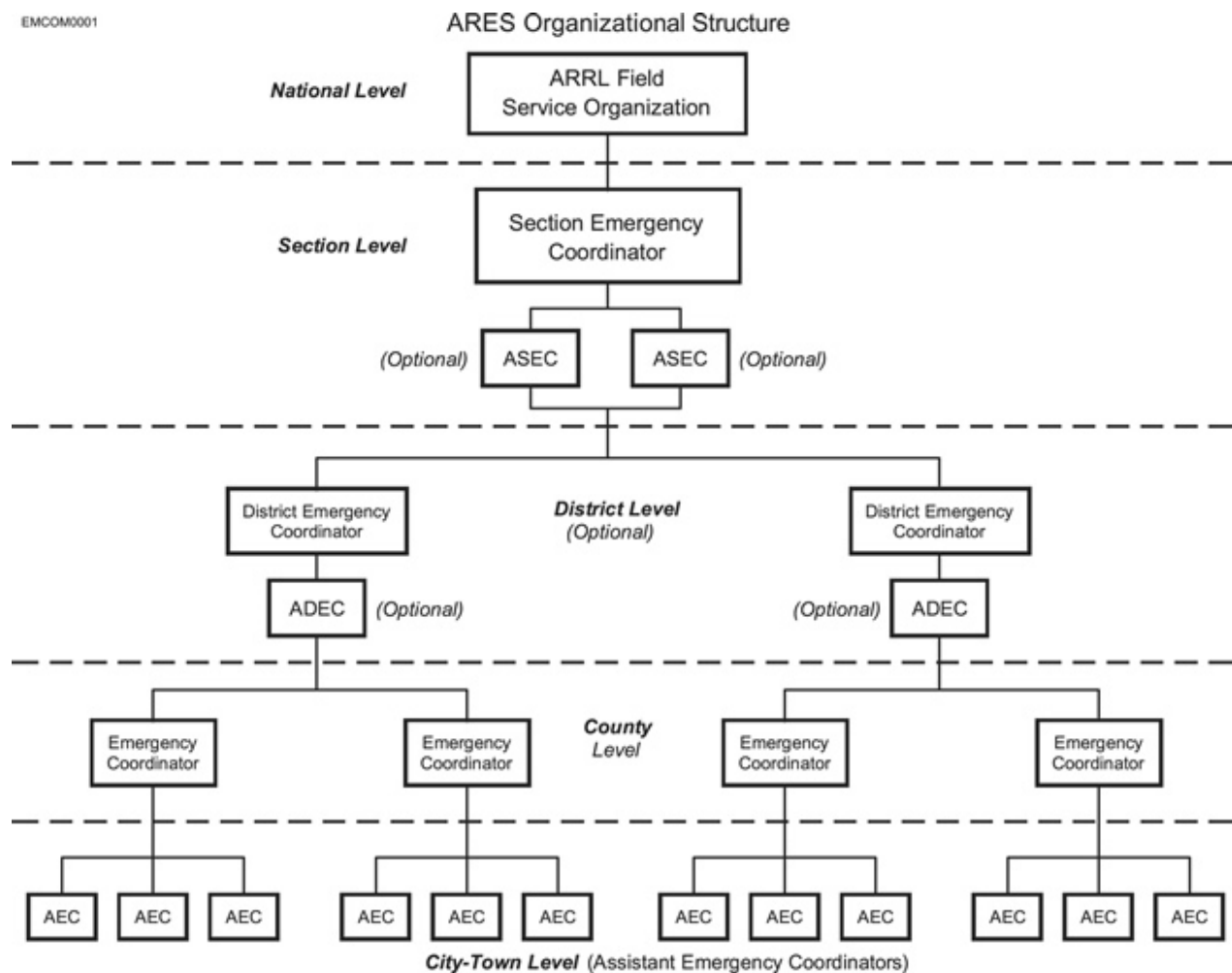
Among the largest and oldest emergency communications groups is ARES, a program sponsored by American Radio Relay League (ARRL) since 1935. ARES is part of ARRL's field organization, which is composed of Sections. Most Sections are entire states, but some larger and more populous states have two or more Sections.

The elected Section Manager (SM) appoints the ARES leadership. The top ARES leader in each Section is the Section Emergency Coordinator (SEC).

Some larger Sections, like Wisconsin and Michigan, or heavily populated Sections, like Connecticut, are further divided into two or more Districts. In this case, each District is guided by a District Emergency Coordinator (DEC) and Assistant DEC working directly under the SEC and/or an Assistant SEC.



EMCOM0001



The next subdivision within ARES is the County or similar region, assigned to an Emergency Coordinator (EC). Most ECs will have one or more Assistant Emergency Coordinator (AEC), who may have responsibility for specific tasks or cities. A large city with complex needs may have its own EC, but most towns and smaller cities will have an AEC.

ARES has Memoranda of Understanding (MOU) with a variety of partner agencies at the national level, including the Federal Emergency Management Partner (FEMA), American Red Cross (ARC), Salvation Army, and the National Weather Service (NWS). These documents set out the general relationship between ARES and the partner at the national level and provide guidance for local units of both organizations to draft more specific local MOUs.

In addition to local chapters of national groups, ARES groups often have MOUs or other written or oral agreements with state and city emergency management departments, hospitals, schools, police and fire departments, public works agencies, and others.



## Radio Amateur Civil Emergency Service (RACES)



After World War II, it became evident that the international situation was destined to be tense and the need for some civil-defense measures became apparent. Successive government agencies designated to head up such a program called on amateur representatives to participate.

In the discussions that followed, amateurs were interested in getting two points across: first, that Amateur Radio had a potential for and capability of playing a major role in this program; and second, that our participation should be in our own name, as an Amateur Radio Service, even if and after war should break out. These principles were included in the planning by the formulation of regulations creating a new branch of the Amateur Service, the Radio Amateur Civil Emergency Service (RACES).

Recognition of the role of Amateur Radio as a public service came with responsibility. Every amateur should have access to a current version of the FCC rules and regulations for Amateur radio (Part 97), which includes the Amateur Service, the Amateur-Satellite Service, and the Radio Amateur Civil Emergency Service. RACES could be the only part of Amateur Radio allowed to operate if the President invokes the “war powers” granted him by the Communications Act of 1934. *“Upon proclamation by the President that there exists war or a threat of war, or a state of public peril or disaster or other national emergency, or in order to preserve the neutrality of the United States, the President, if he deems it necessary in the interest of national security or defense, may suspend or amend, for such time as he may see fit, the rules and regulations applicable to any or all stations or devices capable of emitting electromagnetic radiations within the jurisdiction of the United States as prescribed by the Commission, and may cause the closing of any station for radio communication... .”*

### What RACES Is...

The FCC rules define RACES as “A radio service using amateur stations for civil defense communications during periods of local, regional, or national civil emergencies.” For this discussion, we’ll use the terms “civil defense,” “emergency preparedness,” and “emergency management” interchangeably.



RACES is a radio service available to government emergency management organizations at all times, for official government emergency communications as specified in 47 CFR 97.407 and 97.111(a)(4). There is no specific declaration or emergency event that activates RACES. The “activation” is the direction of the emergency management official to properly qualified individuals to engage in the permitted types of communications in the Radio Amateur Civil Emergency Service. Except for two specific cases, any communications that could be conducted under the RACES rules can also be conducted under the Amateur Service (non-RACES) rules. Those two exceptions are: communications with US government radio stations for RACES communications, and communications in RACES when the Amateur Service has been ordered off the air by the President’s war emergency powers under Title 47 of the United States Code, Section 606 (47 U.S.C. 606).

To understand what RACES is and what it isn’t, it may help to look at some of the other definitions in the FCC rules, § 97.3(a):

*(1) Amateur operator. A person named in an amateur operator/primary license station grant on the ULS consolidated licensee database to be the control operator of an amateur station.*

*(2) Amateur radio services. The amateur service, the amateur-satellite service and the radio amateur civil emergency service.*

*(4) Amateur service. A radiocommunication service for the purpose of self-training, intercommunication, and technical investigations carried out by amateurs, that is, duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.*

*(5) Amateur station. A station in an amateur radio service consisting of the apparatus necessary for carrying on radiocommunications.*

*(38) RACES (radio amateur civil emergency service). A radio service using amateur stations for civil defense communications during periods of local, regional or national civil emergencies.*

So, what is a “radio service?” A radio service is a categorization of users of the radio spectrum that have a common specific radio communication purpose. Examples include the Broadcasting Service, the Aeronautical Mobile Service, the Land Mobile Service, the Maritime Mobile Service, and, of course, the Amateur Service.

The word “Service” in ARES’s name has a different meaning from “Service” in RACES. The meaning of “Service” as used in ARES is consistent with the meaning of public service: actions carried out with the aim of providing a public good. RACES is an FCC-regulated radio service;



ARES is an organization of individuals who apply specialized telecommunications skills for a public good.

The Amateur Radio Services comprise the Amateur Service, the Amateur-Satellite Service, and the Radio Amateur Civil Emergency Service. Most amateur activity is conducted in the Amateur Service. A person doesn't join the Amateur Service; they get a license and operate in that service in accordance with the applicable rules. Similarly, when an amateur communicates via one of the many amateur satellites, they don't join the Amateur-Satellite Service; they operate in that service according to the applicable rules. When an amateur operates in the Radio Amateur Civil Emergency Service, they don't join the Radio Amateur Civil Emergency Service; they operate in that service according to the applicable rules. RACES is a radio service with specific operating criteria. It is not an organization. The rules for operating in RACES require the *operator to enroll in* ("join") the civil defense ("emergency management") organization for the jurisdiction in which they will serve, and to register their station with that organization. When there was a local or state government civil defense (CD) organization, the communications volunteers of that organization could be expected to utilize various radio services as directed by a civil defense (emergency management) official, in accordance with the rules for each radio service. This included the Local Government Radio Service, the Police Radio Service, the Fire Radio Service, the Emergency Medical Radio Service, etc.; the Disaster Communications Service; and the Radio Amateur Civil Emergency Service. The volunteers didn't join any of these other radio services; they joined the civil defense organization and operated in the radio service appropriate to the situation.

There is no RACES organization, hence there is no RACES to join. What amateurs "join" is the volunteer program of the emergency management organization; or, as the FCC rules put it, the Amateur Radio operator must be enrolled in the civil defense organization, and the station to be used in RACES must be registered with that organization.

In the Cold War era, citizens voluntarily joined the CD program to provide one of several specific services: air raid wardens, shelter, fire suppression, first aid, auxiliary police, communications, etc. Many amateurs volunteered to help with communications, which included operating in RACES. They reported to the Radio Officer (not "RACES Officer" or "RACES Radio Officer"), who was responsible for all civil defense radio communications, not just RACES. Over time, public interest in the CD program waned, with the RACES part of the program being (in many cases) the last surviving vestige.

Civil defense evolved into emergency management, and the volunteer program evolved into the Community Emergency Response Team (CERT) program. CERT is the reincarnation of CD, with one major difference: CD volunteers were specialists, whereas CERT volunteers are generalists — every CERT member is trained in all areas of the program. In those jurisdictions where RACES exist as an organization, it carries on as the communications specialty of the civil defense program — sometimes as a government volunteer organization, sometimes as an autonomous



or semi-autonomous organization. RACES was never intended to be an organization unto itself — it is the radio component of emergency management, to be used to achieve the mission of the civil defense program.

### **When RACES Is Operational**

An amateur station operates in RACES only when such operations cannot be conducted under the normal Amateur Service rules:

- 1) When it is necessary to communicate between an emergency management agency and federal government stations for official government emergency communications, and
- 2) When it is necessary to communicate for an emergency management agency official government emergency communications while the Amateur service is ordered off the air in accordance with the President's War Emergency Powers.

Anything else done by amateurs who consider themselves RACES "members" is not within the scope of RACES. Participating in the weekly RACES net on the 2-meter repeater is not RACES, since communications in that net are not specifically authorized by the civil defense organization for the area served (97.407(c) and (d)). RACES "members" sharing information by radio in anticipation of being asked to help, or self-deploying (i.e., not at the direction of an emergency management official), are operating in the Amateur Service, not in the Radio Amateur Civil Emergency Service, regardless of their enrollment status with an emergency management organization.

ARES operates in the Amateur Service, where these specific operations are not permitted. ARES members who want to be able to help in these situations, and to help their emergency management agency in other ways, can do so on the same basis as other citizens — by joining the emergency management agency's volunteer program, which in many cases is the Community Emergency Response Team, or CERT. Enrolling in CERT, or whatever the specific emergency management volunteer program is called, satisfies the enrollment clause of FCC rule 97.407(a). The registration clause of that rule is met by providing information about the station — at the minimum, that should be the call sign, station location, and what bands and modes that station can operate. Emergency managers may require other information to register a station as they see fit; for example, information about availability of emergency power for that station. Enrolling the licensed Amateur Radio operator and registering the station is all that the FCC rules require to establish eligibility to operate in RACES; to be authorized to operate in RACES, the operator must be directed by an emergency management official to engage in specific official government emergency communications (97.407(d)) with an authorized station (97.407(c)).





There does not need to be any group or program specifically called RACES for there to be communications in RACES. ARES members can provide communications in the radio service RACES — if they meet the enrollment and registration requirement of the emergency management organization. It is not enough for ARES to affiliate with the emergency management organization — the individual operators must personally enroll themselves and register their stations. Why is the individual connection required? The answer goes back to one of the basic principles of the Incident Command System (ICS) — Unity of Command — which says that anyone working under ICS has one, and only one, boss. If you are working for the emergency management organization you can't also be taking orders at the same time from the ARES Emergency Coordinator, the Section Emergency Coordinator, and the Section Manager. The emergency management organization has to know what resources are available to it — it can't be in a position in which it has to compete for a pool of volunteers who are available one minute but committed to some other agency the next. The level of commitment expected by an emergency management organization is a matter to be worked out between that organization and the volunteers.

ARES leadership positions include the Emergency Coordinator (EC), the District Emergency Coordinator (DEC), and the Section Emergency Coordinator (SEC). These positions are all “Coordinators,” not “Managers.” The served agency emergency manager and the ARES Emergency Coordinator should establish a clear understanding of the EC's role in the activation and utilization of ARES volunteers. ARES volunteers should expect to have the same relationship with the served agency as other volunteer groups.

Suppose an ARES Emergency Coordinator says to the Emergency Manager, “I have a roster of my ARES volunteers and I know what their capabilities are. If you need emergency communications, you call me and I'll assign my ARES volunteers. I'm not going to give you my roster, but we want to be your RACES capability.” If the emergency manager does call, can these volunteers operate in RACES? No, because the operators are not enrolled in the government agency's civil defense (emergency management) program, nor have they registered their equipment; nor is the emergency management organization specifically authorizing the communications to be transmitted in RACES, since the EC has imposed himself or herself between the emergency management organization and the volunteers.

Let's assume that a CERT program is the civil defense (emergency management) program for a jurisdiction, so joining CERT meets the enrollment requirement for an Amateur Radio operator to be eligible to operate in RACES. A typical CERT training program has 30 hours of instruction — about the same length of time as for an Amateur Radio licensing class. ARES members who become members of CERT get access to a group of dedicated citizens willing to invest 30 hours of their time to be able to help their fellow citizens — exactly the kind of people who get Amateur Radio licenses and join ARES. It is hard to imagine a better ARES recruitment opportunity than CERT, and it is hard to imagine a better recruitment opportunity for CERT than ARES. If ARES members expect CERT volunteers to invest 30 hours to get an Amateur Radio





license, isn't it fair to expect ARES members to invest 30 hours to be certified in the CERT program?

RACES is operational only when it needs to be (to communicate with federal government stations, or when the Amateur Service has been ordered off the air) and when the emergency management official has directed participating stations to engage in official government emergency communications.

## **ARES and RACES**

RACES was never intended to be an organization unto itself. RACES is not an autonomous entity affiliated with an emergency management agency. It is a capability available to emergency management officials to utilize their volunteers who have Amateur Radio licenses to engage in official government emergency communications. With the understanding that RACES is a radio service, not an organization, it is clear that the one-hour-per-week and 72-hours-twice-per-year RACES exercise rules (97.407(d)(4)) do not apply to amateur activities, which are otherwise permitted under non-RACES part 97 rules. If the emergency management official directs that an exercise be conducted in the Radio Amateur Civil Emergency Service, then the RACES rules including the exercise restrictions apply; but if amateurs (ARES or others) are merely participating in an exercise that involves the emergency management agency, then they are operating in the Amateur Service and the RACES exercise restrictions do not apply.

Consider that several amateurs are enrolled in an emergency management program, so they can communicate in RACES when requested by an emergency management organization. If these amateurs, who might call themselves RACES members, operate in the ARRL's annual Simulated Emergency Test (SET), does 97.407(d)(4) apply? No, because their participation in the SET is not done under the authority of a RACES rule, as evidenced by the fact that many ARES members who are not enrolled in a civil defense program can engage in the exact same communications under their license authority in the Amateur Service. Amateurs do not lose operating privileges as a result of enrolling in a civil defense program and registering their station.

It also becomes clear that the restrictions on with which RACES stations may communicate (FCC rule 97.407(c)) apply only to RACES operation when the Amateur Service is ordered off the air, since these restrictions do not apply to the Amateur Service or the Amateur-Satellite Service. If the Amateur Service is not off the air, an amateur operator may communicate with non-RACES amateurs in the Amateur Service during the same operating period in which they communicate in the RACES.

For example, at the direction of emergency management, an amateur operating in RACES communicates by radio with a neighboring town's emergency operations center. After completing that communication, a non-RACES amateur calls to ask about traffic directions. Can the RACES amateur communicate with the non-RACES amateur? It depends — not on the FCC



rules, but on the RACES amateur's instructions from the emergency management official to whom they have volunteered. If the emergency management official said that while on duty the volunteer is to use the radio only for official government emergency communications, then the volunteer must do what they agreed to do; otherwise they might be dismissed from the emergency management program. That is a matter of their agreement as a volunteer, not an FCC rule. If the emergency management official allows such communications but is not directing that it be done as official emergency government communications, then the amateur may communicate in the Amateur Service (not the Radio Amateur Civil Emergency Service) any unofficial communications. There is no need to "switch hats" — there is no announcement that needs to be made when switching between the RACES and the Amateur Service. ARES communications are conducted in the Amateur Service, RACES communications are conducted in the Radio Amateur Civil Emergency Service; both services share the same frequencies. There is no "when RACES is activated" — either amateurs are operating in the Radio Amateur Civil Emergency Service because they are communicating official government emergency communications with a federal government radio station, which is not permitted in the Amateur Service, or because the Amateur Service and the Amateur-Satellite Service have been ordered off the air; otherwise they are operating in the Amateur Service or Amateur-Satellite Service. If you are not allowed to do something in one service but you are allowed to do it in the other service, then you must be operating in the service where it is allowed. Many amateurs believe that "in an emergency, anything goes." This is not true. There are specific rules that specify what a station may do in certain emergency circumstances, not whatever someone might consider to be an emergency. These rules are 97.403, Safety of life and protection of property, and 97.405, Station in distress.

### ***§97.403 Safety of life and protection of property.***

*No provision of these rules prevents the use by an amateur station of any means of radio communication at its disposal to provide essential communication needs in connection with the immediate safety of human life and immediate protection of property when normal communication systems are not available.*

### ***§97.405 Station in distress.***

*(a) No provision of these rules prevents the use by an amateur station in distress of any means at its disposal to attract attention, make known its condition and location, and obtain assistance.*  
*(b) No provision of these rules prevents the use by a station, in the exceptional circumstances described in paragraph (a) of this section, of any means of radio communications at its disposal to assist a station in distress.*

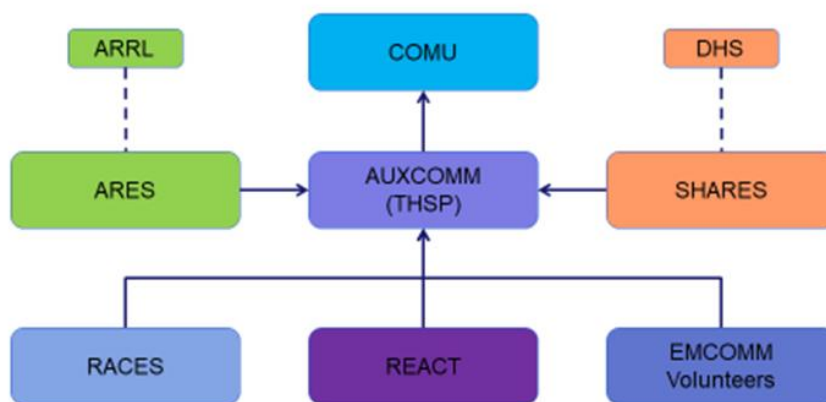
"Immediate safety of human life and immediate protection of property" means actually happening or about to happen, not just the mere possibility that something could happen; "when normal communication systems are not available" — inaccessible or inoperative; "any means of radio communication at its disposal to provide essential communication needs" — essential communication needs directly related to the "immediate" situation, not routine



communications that happen to occur during an emergency situation. A station in distress or assisting a station in distress may use “any means at its disposal to attract attention, make known its condition and location, and obtain assistance.” If you think about the meaning of the key terms in these rules, you will see that it is a long way from “anything goes.”

## Auxiliary Communications (AUXCOMM)

AUXCOMM is an all-inclusive term used to describe the Technical Specialists, of many organizations, that provide communications support to Emergency Management’s Communications Unit.



(Image courtesy of Hank Koebler)

Trained Auxiliary Communicators (AUXC) are a valuable communications resource tool that can be used by local, county, regional, tribal or state agencies/organizations.

## Salvation Army Team Emergency Radio Network (SATERN)



SATERN members are also Salvation Army volunteers. Their HF networks are used for both logistical communication between various Salvation Army offices and for health and welfare messages. At the local level, ARES and other groups often help support the Salvation Army’s operations.

## The Rapid Response Team (RRT)

In the first minutes of an emergency, it is sometimes important to get the basic essentials of a network on the air quickly. The solution is the RRT concept, although its name may vary. In

Hawaii, it is known as a “Quick Response Team” (QRT), and in New Hampshire, a “Rapid Emergency Deployment Team” (RED Team). Rather than a standalone organization, an RRT is a small team within a larger emergency communications group. Its job is to put a few strategically placed stations on the air within the first half-hour to hour. These stations will usually include the emergency operations center (EOC), a resource net, and often, a few field teams where they are needed most. This is commonly known as a Level 1 RRT response.

A Level 2 RRT response follows within a few hours, bringing additional resources and operators. Level 1 teams have preassigned jobs, and short-term (12- to 24-hour) go kits (sometimes called “jump kits”), ready to go whenever the call comes. Level 2 teams have longer term (72-hour) go kits, and a variety of other equipment, possibly including tents, portable repeaters, extended food and water supplies, sleeping gear, spare radios, and generators, depending on local needs.

### **ARES Mutual Assistance Team (ARESMAAT)**

When a communication emergency lasts longer than a day or two, or when the scale of the emergency is beyond the ability of a local ARES group to handle, help can be requested from neighboring areas. The ARESMAAT concept was created to meet that need. These teams consist of ham radio operators who are willing and able to travel to another area for a period to assist ARES groups based in the disaster area. They may also bring additional resources in the form of radios, antennas, and other critical equipment. If you travel to another area as part of an ARESMAAT, remember that the local group is still in charge — you are there to do what they need done. In a sense, the host ARES group becomes a “partner.”

### **Military Auxiliary Radio System (MARS)**



The Military Auxiliary Radio System (MARS) is a Department of Defense-sponsored program, established as separately managed and operated programs by the Air Force and Army. The MARS program is 91 years young, activated in November 1925 as a partnership between Army’s Signal Corps and the licensed amateur radio operators of the ARRL. The program consists of roughly 23,000 licensed Amateur Radio operators who volunteer their time, services, and communications expertise — using their personal radio equipment — to assist the Department of Defense and other federal, state, and local agencies with auxiliary communications in the event of a disaster or emergency.



As an organized military auxiliary, MARS members are prepared to supplement the uniformed services or any designated civilian authorities by provision of specialized autonomous services when called upon or when situations warrant. Through training, exercises, situational awareness, and incident reporting, MARS members help the nation prepare for and respond to crises and emergencies. During times of emergency, MARS provides backup communication networks to military, federal, state, and local agencies. MARS' most publicly visible mission, providing phone patches to family members for US military personnel overseas, has diminished with the advent of new satellites that provide e-mail and phone service almost anywhere. However, this was never MARS' largest or most important function. One advantage of the MARS system is that it is specifically authorized to communicate with other government radio services in time of emergency, including the federal SHARES HF networks.

### Local Radio Clubs

Not every area has a working ARES program or other nationally affiliated emergency communications group. In many cases, the void is filled by local radio clubs that work with partner agencies, either informally or with a formal MOU.

### SHARES

Even those who have been involved with emergency communications for years may not know of the US government's "Shared Resources System," known as SHARES. The **SH**ared **RE**sources (SHARES) High Frequency (HF) Radio Program coordinates a voluntary network of government, industry, and disaster response agency HF radio stations used for emergency communications. SHARES support government (federal, state, and county), critical infrastructure, and nationwide or multi-state disaster response organizations in two ways: by transmitting emergency messages when normal communications systems are destroyed or unavailable, and by providing HF radio channels for interoperability. SHARES support Emergency Support Function Two (ESF #2), Communications, and helps participants maintain awareness of applicable regulatory, procedural, and technical issues. SHARES is a program of the [National Coordinating Center for Communications](#) (NCC), a division of the Department of Homeland Security (DHS), [National Cybersecurity and Communications Integration Center](#) (NCCIC). In addition to government agencies, key communications companies such as AT&T and agencies such as the Red Cross have SHARES radios. The SHARES system utilizes a number of nationwide and regional networks.

### Federal Emergency Management Agency — FEMA National Radio System (FNARS)

This is a FEMA high frequency (HF) radio network designed to provide a minimum essential emergency communication capability among federal agencies, state, local commonwealth, and territorial governments in times of national, natural, and civil emergencies. FEMA monitors FNARS on HF on a daily basis. At the state level, FNARS radios are typically located at the state's emergency operations center (EOC).



## **Radio Emergency Associated Communications Teams (REACT)**

REACT is another national emergency communications group, the members of which include Citizen's Band (CB) radio operators, ham radio operators, and others. In addition to CB and Amateur Radio, they may use General Mobile Radio Service (GMRS), Family Radio Service (FRS), and the Multiple Use Radio Service (MURS).

REACT has an organizational structure similar to ARRL/ARES, with local teams who directly serve many of the same agencies served by ARES and other ham radio emergency communications groups. REACT has MOUs with many of these agencies as well as with ARRL.

REACT's mission is somewhat broader than that of ARES. It offers crowd and traffic control, logistics, public education, and other services that usually (but not always) include a need for radio communication.

## **Emergency Warning Systems**

### **Emergency Alert System — EAS (Broadcast Radio & TV)**

The current EAS system has evolved from the earlier Emergency Broadcast System (EBS) and the original "CONELRAD System" developed during World War II. The EAS relies on radio and TV broadcast stations to relay emergency alert messages from federal, state, and local authorities. Messages may pertain to any immediate threat to public safety, including enemy attack, storm warnings, earthquake alerts, and wildfires. Messages are relayed from station to station using automatic switching systems and digital signaling. You may have heard the required weekly EAS tests performed by radio and TV stations and their distinctive digital "squawk" sound.

### **NOAA Weather Alert and National Weather Radio (NWR)**

The National Weather Service (NWS) division of the National Oceanic and Atmospheric Administration (NOAA) operates NWR. NWR uses seven frequencies in the 162MHz band to carry audio broadcasts to the public. In addition to routine weather reports, it carries forecast and warning information from the regional network of forecasting offices, and it provides timely and quality alerts dealing with weather and other natural events.

Newer "weather alert" radios are available from a variety of manufacturers with the digital Specific Area Message Encoding (SAME) alert mechanism. SAME-equipped radios will remain silent until an alert is received for a specific geographic area. The user programs one or more five-digit Federal Information Processing Standard (FIPS) codes for the areas they wish to monitor. When the NWS broadcasts the alert with the SAME code matching the one programmed into the receiver, the receiver will activate and allow you to hear the audio





message concerning the alert. Some receivers also provide a textual display of the alert information. The NWS tests the SAME network at least once weekly, and the radio will indicate that it has heard the test alert within the past week.

### **NAWAS (National Warning System)**

The federal government maintains a “hardened” and secure national wire line phone network connecting the “warning points” in each state (usually the state police HQ or state EOC). The center of NAWAS operations is the National Warning Center at NORAD’s Cheyenne Mountain command and control complex in Colorado. Its primary purpose is to provide notification in case of enemy attack, and to inform and coordinate alert and warning information among states in a given region. During peacetime, it carries alerts on a variety of wide-ranging emergencies. Roll call check-ins are taken periodically during the day to ensure that the phone circuits are functioning properly.

### **Statewide Warning Systems**

These systems are similar to NAWAS, but at a state level. For most states that have such a system, county warning points are part of a statewide alert and warning network. It is known by different names in each state. For example, in California, it is CALWAS. In Hawaii, HAWAS connects the warning points in each island county, the Pacific Tsunami Warning Center, the local National Weather Service Forecast Office, and the Hawaii Air National Guard. It keeps these key entities informed on a real-time basis of bulletins crucial to these agencies. The warning systems in other states are similar.

### **Tsunami Warning System**

A national and international network of warning points are connected together to provide timely exchange of tsunami warning information. In the United States, it is known as the Tsunami Warning System (TWS). Information is relayed to a wide range of government, civil defense, military, and international tsunami research/warning points within each country or area.

### **National Earthquake Information Center (NEIC)**

The US Geological Survey operates the National Earthquake Information Center, located in Golden, Colorado. The NEIC issues rapid reports for those earthquakes that register at least 4.5 on the Richter scale in the United States, or 6.5 on the Richter scale (or are known to have caused damage) anywhere else in the world. Public warning reports are disseminated in the affected areas via the NWR and EAS systems.





## Review

Organization is critical to any emergency response. Without an organization that plans and prepares in advance, an Amateur Radio emergency communications response is likely to be disorganized and ineffective.

A variety of government and private emergency communication groups assist in time of disaster.

While Amateur Radio operators may not interact with many of these systems, it may help to know that they exist, since your partners may utilize or interact with one or more.

## Recommended Activities

1. Go to the ARRL Web site at [www.arrl.org/ares](http://www.arrl.org/ares) and familiarize yourself with the ARES information provided there especially with the contents of the ARES Manual and the Field Resources manual.
2. Discuss the difference between ARES and RACES with your instructor.
3. When does RACES rules apply?
4. Name two instances when RACES might be operational.

