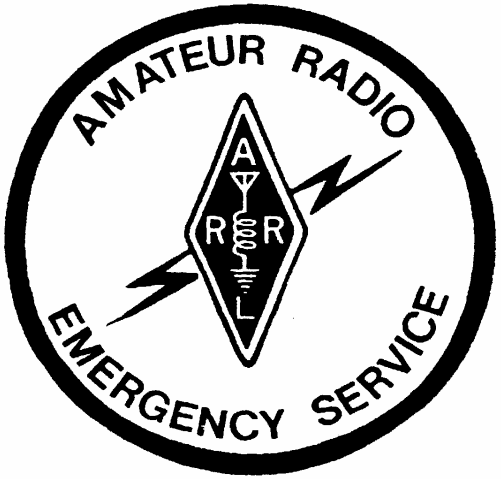
Santa Cruz County ARES
Standard Operating Procedures
and
Field Handbook



Innovate, Adapt, Overcome

January, 1998

Preface

The Amateur Radio Emergency Service (ARES) exists to *communicate*. In time of need, we use our amateur radio equipment to augment civil and private agencies communications. These communications can encompass immediate "tactical" messages, lengthy logistics traffic, and health-and-welfare messages.

If the assistance required concerns the safety and welfare of the general public, we do it.

This handbook is for you, the Amateur Radio Emergency Service volunteer. It describes the organization of ARES and gives our Standard Operating Procedures (SOP). Use these SOPs when you are assigned to field positions during mobilization and public service events.

It is also a convenient field pocket reference for general information. Keep it with you when on an ARES assignment. Reference data includes frequencies, and, in some cases, CTCSS (PL) tones in use by other ARES groups, Amateur Radio channels, and agencies with

whom we are likely to interact. Other reference data includes the telephone numbers of served agencies, checklists for personal equipment, and so forth.

ARES is *your* group and this is *your* handbook. It is a "living" document; it depends on your objective comments to continually improve. If you know of ways to improve upon it or find errors in it, ***please*** **let your EC know**.

This Handbook written and edited by:

Jim Piper / KD6YKL

from sources including:

- *The Santa Cruz County ARES Handbook* (Bruce Wade / W6FKD, 2/96 and Wayne Thalls / KB6KN, 1990)
- *Loma Prieta ARES Emergency Handbook*, Jan 1996 (Mike Kelley / N6ZOC).
- *Public Services Communications Manual*, ARRL 1997
- The Emergency Coordinators Manual, ARRL 1997
- SEMS Training Course (Paige Emergency Management, 5/96)
- *Fireline Handbook,* NWCG *Handbook 3*, 1989
- Capt. Charles Pennel, CDF (KE6AFE) (CDF frequencies)
- Ben Hatheway (N6FM) for Santa Cruz Consolidated Emergency Center phone numbers.

Contents

Part 1 Santa Cruz County ARES

Who is ARES

The ARRL formed the Amateur Radio Emergency Service (ARES) together with the National Traffic System (NTS) to establish organized communications trunk lines and net systems. Operating as part of the ARRL Field Organization, local ARES groups are a complete and tight volunteer group of radio amateurs and administrators working together to implement their own effective and various forms of public-service communications.

The Santa Cruz County ARES consists of radio operators licensed for the Amateur Service who have registered their qualifications and equipment to provide communications in the public interest. Such communications are provided during emergencies caused by natural disasters (floods, earthquakes, etc.) and man-made disasters (chemical spills, and so forth). Consisting of four cooperating but independent ARES groups, we serve the entire area of Santa Cruz County. In addition, in cooperation with the ARES groups of their respective areas, we serve the areas of north Santa Cruz County and, to our south, north Monterey county.

What ARES Does

Part 97 of the FCC Rules and Regulations provides for the Basis and Purpose of the Amateur Radio Service as:

"(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary non-commercial communication service with respect to providing emergency communications."

Herein lies the charter of Watsonville ARES: ARES is first and foremost a *service*.

ARES responds to calls for assistance from those agencies that have the responsibility for declaring emergencies (e.g., County OES) or provide services in times of emergency (e.g., the Red Cross). Every disaster is unique; no preplanning prepares one for the exact circumstances of any forthcoming event. It behooves emergency organizations to prepare for as many situations as possible. Preparation is the primary goal of both the planning and training conducted by ARES—as does on-going liaison with the agencies we serve.

ARES can be called upon to supply communication services where no established links exist or to supplement existing systems when they become disabled or overloaded. The communication systems of public safety organizations are designed to routinely handle emergency situations. It is not feasible for them

to continuously maintain the resources required to meet peak demands of major disasters. In those instances, Radio Amateurs serve to complement existing government and disaster agency communications resources.

ARES members bring additional value to the services we render by the additional skills we individually have. For example, our abilities to troubleshoot and repair, Red Cross training and experience, public agency communications dispatch experience, and so forth. These added skills allow us to flex to meet the needs of fluid situations.

The Services ARES Provides

Services provided by Santa Cruz County Amateur Radio Emergency Services can include:

- Communications between Santa Cruz County, other adjacent counties, and other Government agencies.
- Communications between county officials and other officials of local government or state agencies.
- Communications between county, municipal and state public service organizations.

- Supplemental communication services to disaster relief organizations, including the American Red Cross and Salvation Army.
- Supplemental communication services to hospitals and other medical resources.
- Health and Welfare communications for the general public.
- Additional public service communications as required.

Part 2 Organization

ARES and the National Traffic System (NTS) exist as the ARRL's implementation of the basic principal and purpose of the Amateur Radio service. ARES and the NTS have much in common. Every emergency net is, to some extent, a traffic net and every traffic net should prepare to take on various forms of emergency communications duties. The ARES and NTS follow parallel structures as ARRL Field Organizations (Figure 1).

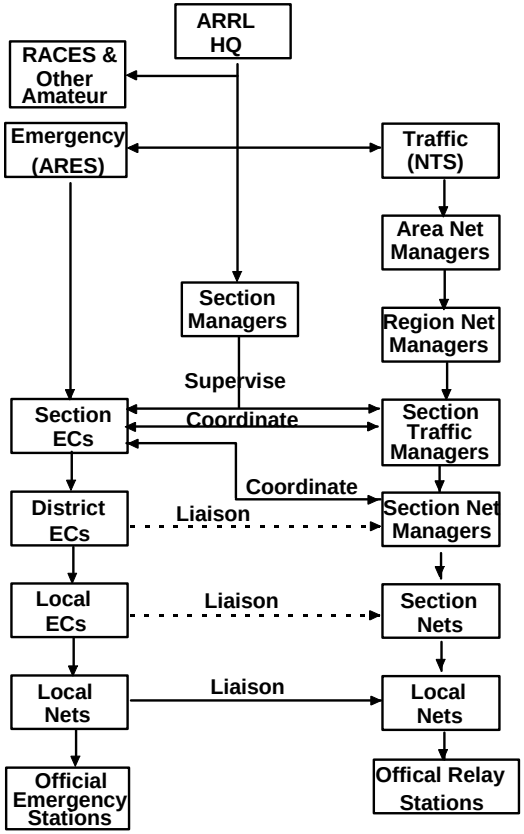


Figure 1 ARRL ARES/NTS Organization Chart

Leadership in ARES is exercised by the Section Emergency Coordinator (SEC), the District Emergency

Coordinator (DEC), and the local Emergency Coordinators (EC's). In the NTS, the Net Managers at various levels perform responsibilities similar to ARES ECs.

Emergency operation is usually initiated at the local level and is the business of the local EC. An emergency can escalate beyond the local level to a state level or even to a regional level. However, the immediate situation and what to do about it are primarily the concern of *local* ARES officials. Much of the emergency communications is generated by civic and welfare officials, or at their request, with resulting problems handed to ARES for resolution. This is particularly true for ARES and its relationship with the Red Cross. Locally, we augment the local Red Cross' severely limited communications resources in times of emergency.

ARES Organization Chart

ARES has four levels of organization: national, section, district, and local. The ARRL Field Services Manager supervises national coordination at ARRL Headquarters. The Field Services Manager advises all ARES officials regarding their problems, maintains contact with federal government, and other national officials concerned with amateur communications potential, and generally

carries out the ARRL's policies regarding emergency communications.

Section

ARES "sections" directly coincide with the ARRL sections.

At the section level, the Section Manager appoints the Section Emergency Coordinator (SEC). (The SM is elected by the ARRL members in his/her section.) The SEC works under and is supervised by the Section Manager. Typically, the SM delegates to the SEC the administration of the section emergency plan and the authority to appoint district and local ECs.

District

The district is the intermediate level between the section and the "local" area (in our case, Santa Cruz County). The DEC facilitates the cooperation between the local ARES groups where the entire district is involved.

Emergency Coordinators, appointed by the SECs with the approval of the ARRL Section Manager, are so appointed typically on the recommendation of DECs.

Local

The "local" area is where most of the real organizing for emergencies gets done. This is the level at which

emergencies occur and the level at which ARES leaders directly contact member-volunteers and the officials of the agencies served. The local Emergency Coordinator (EC) is, therefore, the key ARES official. The operational area over which an EC has responsibility could include a small community, a large city, an entire county, or even a group of counties. Whenever an operational area is assigned, the EC is in charge of all ARES activities within the assigned area. The operational area is not limited just to one interest group, one agency, one club, or one frequency band.

The AAA Santa Cruz map covers the City of Santa Cruz and most of San Lorenzo Valley and Scotts Valley; the Watsonville map covers the majority of the Watsonville ARES operational area.

Administration

Each ARES group is administered by the local EC with the support of Assistant ECs (AECs). Though not democratically run, ARES depends heavily on the cooperation and constructive input of its members.

EC

The EC is primarily responsible for her/his specific operational area. The EC is generally responsible for promoting ARES for the benefit of the public as a

voluntary, non-commercial communications service through:

- Resource Planning
- Recruiting and training of volunteers
- Establishing and maintaining liaisons with served agencies
- Administration of ongoing programs
- **O**verall operational control during declared disaster situations

AECs

The Emergency Coordinator appoints assistants who are responsible for managing specific activities necessary for establishing and developing a viable ARES group. When an ARES group is activated and mobilized during a disaster, those management responsibilities must change to reflect the requirements of an operational organization. In a major disaster operation, several managers are required for each incident. These roles can be best assumed by people who have advance preparation for the jobs and have local knowledge.

There are four main categories of AECs: Operations, Administration, Liaison, and Logistics. (This organization parallels the Incident Command System.)

The general duties of any AEC includes:

1. Informing the EC of any developments in their region of responsibility.
2. Keeping records the EC deems necessary on their assignments and updating the records regularly.
3. Participating in as many ARES activities as possible.
4. Keeping the members of their assignment informed of ARES activities.

Typical assignments assumed by the responsible AECs follow.

Operations AEC

- Net Manager for specific ARES nets
- Net Control Station for specific ARES nets
- Coordinator for ARES activities on a specific frequency band
- AEC for packet/PBBS and/or digital modes
- Assembly point coordinator
- Operational assistant to EC during disasters
- Coordinator for subdivision of EC area
- "Team Captain" of ARES subgroup

Administration AEC

- Recruiting
- Public relations
- Personnel records
- Equipment inventory
- Training
- Reports

Liaison AEC

- Establishes and maintains contact with the Santa Cruz County, adjacent counties and local governmental agencies, medical and disaster relief organizations.
- Advise served agencies on ARES resources and capabilities.
- Determine the needs of the agencies and makes recommendations for satisfying those requirements.
- Keep ARES members informed of all changes in emergency relationships with served agencies.
- Coordinate meetings between served agencies and ARES staff.
- Maintains liaison with the NTS
- Maintains liaison with adjacent ECs.

Logistics AEC

- Transportation
- Supplies—food, water, fuel, etc.
- Equipment—generators, batteries, antennas
- Repeater restoration—if damaged by disaster

AECs may have both a pre-disaster phase assignment and a different assignment during disaster operations.

Nets

Watsonville ARES convenes a net weekly to determine what resources are immediately available and to pass administrative information to the membership and to any interested Hams.

Meetings

Meetings are scheduled for both the ARES membership and for any interested Ham. The meetings are for both ARES business and training sessions. The ARES meeting pre-empts the weekly net.

Training

ARES periodically convenes formal sessions to train its members in net procedures and to practice

communications during various simulated emergency situations. These training sessions can be both scheduled events and surprise announcements to test readiness.

Part 3 Mobilization

"Mobilization" refers to the occasion when ARES members report for service in response to some form of declared emergency or to a request for assistance in behalf of public safety.

When

ARES mobilization typically occurs on the request of a public service agency as part of the SEMS and the Incident Command System (Part 4 Introduction to SEMS).

The Watsonville ARES group uses the Incident Command System (ICS) to mobilize and manage its services.

On the occasion of a mobilization, some form of emergency situation has arisen and been so declared by the public agency. Any of the agencies we serve can declare the emergency and request assistance. Some examples:

- During the aftermath of the 1989 Loma Prieta earthquake, ARES provided communications on behalf of Santa Cruz County Office of Emergency Services (OES).

- During the 1995 Pajaro Valley flood, on behalf of the Red Cross, ARES mobilized a net between the shelters and Santa Cruz County Red Cross facility.
- Watsonville ARES provides primary safety and emergency liaison communications during the annual Watsonville Antique Fly-in and Airshow.

By Whose Authority

The EC or his representative mobilizes ARES at the request of a "client" agency. The agency can be the county OES, California Division of Forestry, the Red Cross, and so forth.

When the mobilization is on behalf of a state agency, the requesting authority issues an incident number to identify the occasion ("incident"). (The Red Cross uses a disaster identifier.) Throughout the incident, this number is used to correlate any activities related to the incident.

When you are asked to report for an assignment, ask for the Incident Number.

When you act in the EC's behalf in response to a request for assistance from an agency, *always* ask for the Incident Number.

How

The agency needing assistance contacts the EC or other designated ARES authority. Whoever receives the request tries to contact the DEC and appropriate ECs. If none can be found, the person who spoke to the requesting agency takes charge as the **Shift Supervisor**.

ARES activation and resource mobilization are effected by broadcast announcement and by directly contacting members.

When an agency requests ARES assistance, each ARES group independently determines its personnel needs and decides the method for calling up the Radio Amateur resources.

When the requirements for personnel have been determined, the Resource Net Control Station (NCS) uses this information to notify ARES members and to recruit additional help from the Ham community as required. The Resource NCS coordinates the assignment of personnel in cooperation with the ECs and DEC. The ECs and DEC decide when other mutual assistance is needed from other ARES groups and the Ham community at large.

When contacted, ARES members are given the incident number, instructions for reporting and information regarding the nature of the mobilization.

Telephone Tree

The telephone tree-technique is used to directly contact ARES members for call-up. The call-up procedure follows:

1. The first person called takes one half of the membership roster.
2. Called members take one half of the remaining membership roster.
3. Continue splitting the list until each caller contacts approximately 10 people.
4. Calls members in the order of priority as listed in the Call Priority (CP) column (A, 1, 2) on the roster.

Broadcast Announcement

The K6BJ/KI6EH linked Santa Cruz Amateur Radio Club repeaters announce the ARES mobilization and call-up.

Net Activation Procedures

A request for ARES assistance originates from the Santa Cruz County Office of Emergency Services or other served agency. The request goes to the first person reached on the phone tree for served agencies. The

person receiving the request records the following information:

- Name, title, and telephone number of the requesting individual.
- Agency requesting assistance.
- Incident number.
- Time of the incident.
- Other essential information regarding the incident, such as, location, situation details, and locations to be manned by ARES members.
- Number of ARES personnel needed at each location.
- Name(s), title(s), and agency(ies) to whom ARES personnel are to report at each location.
- Special instructions regarding routes and access to the affected area.

If you are contacted by a requesting agency, be absolutely clear on all information. Contact the DEC and EC'S of the effected area. You may become acting NCS until the AEC for resources or other designated net control is able to relieve you.

When contacted, broadcast the following alert on the K6BJ and KI6EH repeaters:

"Alert alert alert. This is a (fire/medical/general) alert. This (is/is not) a drill. ARES has been activated by _____ (agency that called you)"

If you are unsure about assuming net control, say:

"Is there a net control operator on frequency?"

If a control operator responds, give them all the pertinent information regarding the situation.

Unless the NCS directs otherwise, continue the bulletin:

"All stations: This is a (fire/medical/general) activation of the Santa Cruz County ARES net. Stations available for assignment please check in when requested."

Provide details of the incident.

Initially, the station is both Tactical and Resource Net Control. As soon as possible, instruct other stations to repeat the information bulletin on other area repeaters. This alerts others to the possibility of a need for their services. More importantly, this helps keep the primary emergency channel clear of requests for information from the merely curious.

After the initial alert, the Tactical Net becomes operational and is the source from which radio operators are initially dispatched to assignments. Later, the Resource Net dispatches operators on assignment. Emergency situations involving ARES typically serve the Red Cross and area hospitals. The County EOC and these locations are the first to become operational. These

locations are initially staffed by pre-designated individuals.

Admission to the County EOC at NetCom is restricted to authorized ARES members.

First Responders

First responders are ARES members who have "pre-volunteered" for a specific assignment. When a mobilization call goes out, First Responders immediately proceed to their assigned stations and check into the net when they put their stations on the air. These stations, for example, can include the county and city of Watsonville EOCs, Dominican and Watsonville hospitals, and so forth.

Announcing Your Availability

When you hear a mobilization broadcast or are advised of the ARES event by telephone, monitor the designated resource frequency and announce your availability for assignment to the NCS.

A Note About Your Family…

Your family *always* comes first!

When an emergency occurs that affects an entire community (e.g., an earthquake), ensure that your family is safe and secure *before* you consider reporting for a mobilization.

Before You Report for Mobilization

For a worst-case scenario, ARES mobilization could require you to be temporarily relocated for an indefinite period. Follow these guidelines to prepare for an extended assignment:

- Assemble or update a travel kit containing any special technical information you may need (maps, radio manuals, and so forth).
- Prepare the personal items you need for the estimated duration of your assignment.
- Review your assignment. Know to whom you are to report and what your responsibilities are.
- Clearly understand the decision-making authority you hold for ARES while at the incident or at the EOC.
- Ensure your family knows your destination and how to contact you in case of a family emergency.
- Determine what your return transportation mode is, as necessary.

When You Report for Your Assignment

Field Assignment

When you are assigned to a post during an ARES event, you must check-in on arrival. The check-in process ensures a complete and continuous accountability of assigned personnel. Be sure to ask the Resource Net Control where personnel and equipment check-in locations are.

EOC Assignment

If you are assigned to the County EOC, you will have a specified check-in location and a specified check-in procedure. (This may be done through simple sign-in sheets or through a personnel clerk.)

Checking-In With Your Supervisor

Under the Unity of Command or management feature of the Standard Emergency Management System (SEMS, refer to page 27), when operating within a field response ICS organization or at the County EOC level, you can expect that a supervisory link is established. Find out who this supervisor is and check-in with her/him.

Briefing

Expect to receive a briefing after you check in and before you go to your assignment. Your briefing should include:

- An assessment of the current situation.
- Identification of your job responsibilities.
- Identification of your co-workers within your job function and/or geographical assignment.
- Availability of non-Ham communications channels (e.g., telephones, commercial or agency radio channels, etc.).
- Location of your work area.
- Identification of your eating and sleeping arrangements, as applicable.
- Procedures for getting more supplies, services, and personnel.
- Identification of your work shifts (for extended mobilizations).

When It's All Done—Demobilization

Requirements for demobilization vary considerably at the field level and at the EOC level. Large incidents may have a Demobilization Unit within the Planning/ Intelligence function to help facilitate the process. The

general demobilization requirements for all personnel at any level include:

- Complete assignments.
- Brief others, as required.
- Complete and file required forms and reports.
- Follow agency check-out procedure.
- Return any equipment or other non-expendable supplies.
- Report to assigned departure points on time or ahead of schedule.

Mutual Assistance to Other ARES Groups

When an emergency overwhelms the resources available to the responsible ARES group, the group's EC will formally request assistance from neighboring ARES groups. This formal request is ARES Mutual Assistance Team (ARESMAT) concept. You should first make yourself available to the group in your immediate community. However, you can (and are encouraged) to volunteer your services to neighboring ARES groups for emergencies that do not result in the general mobilization of your local group. Such a situation for Watsonville ARES, for example, could include flooding in the San Lorenzo Valley.

In addition, ARES members in an affected area may be preoccupied mitigating their personal situations, and may not be able to respond to a local mobilization. In such a situation, help comes from ARESMAT from

outside the affected area. Refer to Part 17 ARESMAT Leader Checklists on page 122 for ARESMAT leaders.

A fine balance of authority exists over a deployed ARESMAT. The in-disaster SEC (or representative) should be able to make decisions as to use and deployment of an incoming team. Therefore, an incoming team should be prepared to respond to such authority. Any team, whether internal or external has only a limited view of the overall operation, whereas the supervising authorities have a naturally better overview of the situation.

However, the in-disaster authority should be discouraged from abusing the resources of an incoming ARESMAT. Should a team no longer be required, or a situation de-escalate, the team should be released at the earliest possible time.

The ARESMAT should be a last resort-better than nothing." Whenever possible, amateurs from the affected section should be used for support.

Part 4 Introduction to SEMS

As a direct result of the 1991 East Bay Hills Fire in Oakland, State Senate Bill 1841 was passed into law and became effective January 1, 1993. Found in §8607 of the Government Code, the law intends to improve the coordination of state and local emergency response in California. This statute directed the state OES, in conjunction with other state agencies, to establish the Standardized Emergency Management System (SEMS). SEMS took effect in September 1994. (All state and municipal agencies were required to comply by December 1996.)

ARES as operates within the SEMS structure when serving a government agency during an emergency. Therefore, individually and as an ARES group, we have an interest in knowing about the organization and function of SEMS and the Incident Command System (ICS) within SEMS.

In reality, when mobilized by a government agency, we operate as RACES vs. ARES, though the distinction is frequently blurred.

Scope of SEMS

SEMS is a management system based on a system proved over 20 years. It provides an organizational framework

and guidance for operations at each level of the state's emergency management system. The basic framework of SEMS incorporates the use of the Incident Command System (ICS) for multi-agency coordination, the state's Mutual Aid Agreement, the Operational Area concept, and the Operational Area Satellite Information System (OASIS).

SEMS provides for a five-level emergency response organization, activated to provide an effective response to multi-agency and multi-jurisdiction agencies. The SEMS levels include:

1. Field (lowest)
2. Local Government (municipalities)
3. Operational Area (Santa Cruz County)
4. Region
5. State (highest)

Components of SEMS

SEMS integrates five components of the state's primary response programs:

- The Incident Command System (ICS)
- Multi-Agency Coordination System (MACS)
- Master Mutual Aid Agreement
- Operational Areas
- OASIS

All but the ICS is beyond the scope of this handbook.

ARES and SEMS

During an emergency or other event for which we would locally mobilize, ARES can operate at the Field, Local Government, and Operational Area Levels of SEMS. As ARES, we are available to augment the communications resources of the agencies we serve.

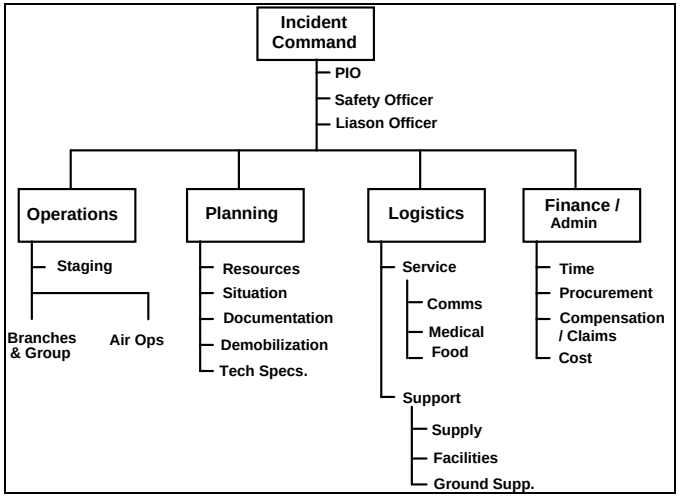
At the Field Level we support emergency response personnel and resources that carry out tactical decisions and activities under the command of an appropriate authority in direct response to an incident. (The ICS for the responding agency functions at the SEMS Field Level.)

At the Local Government Level, we can support the County of Santa Cruz and any one of or all four cities that manage and coordinate the overall emergency responses and recovery activities within their jurisdictions.

At the Operational Area is the intermediate level of the state OES. As such, we support the County OES in its efforts to manage and coordinate information, resources, and priorities among the Santa Cruz County local governments.

SEMS Functions at the Field and EOC Levels

The primary functions found in SEMS and ICS include:



Note that these functions apply to *both* SEMS (on the larger scale) and to ICS (at the field level). These functions provide a common thread from the local level to the state level of control in emergency (and non-emergency) situations.

Command (and Management)

At the field level, Command is responsible for directing, ordering, and controlling resources. At the

EOC level, Management is responsible for overall emergency policy and coordination.

Operations

The coordinated tactical response of all field operations in accordance with the Incident Action Plan falls under the function of Operations.

Planning/Intelligence

At the field response level, this function includes collecting, evaluating, documenting, and using information in support of the incident. At the EOC level, this function includes collecting, evaluating, and providing information and maintaining documentation.

Logistics

At the field response level, this function provides facilities, services, personnel, equipment, and materials in support of the incident. At the EOC level, this function provides the above to one or more incidents.

Finance/Administration

This function analyzes finances and costs and handles aspects of administration not handled by

other functions. This function applies to both the field and EOC levels.

Where ARES Fits

Due to the support role that ARES fills, we can find ourselves assigned to any of the above functions. Knowledge of SEMS and the ICS will help you understand the application of your particular skills by the agencies we serve. Further, this knowledge will help you understand the function of your assignment during an ARES mobilization.

Part 5 Standard Communications Procedures

Our primary job in ARES is to *communicate*. Standard procedures for communications facilitate the clear, concise transfer of information over the radio medium we use.

Categories of Traffic

Radio traffic has four orders of precedence of importance:

- Emergency
- Priority
- Welfare
- Routine

Emergency

Any message traffic having life and death urgency to any person or group of persons, which is transmitted by Amateur Radio in the absence of regular commercial facilities. Emergency traffic includes messages of welfare agencies during emergencies that request supplies, materials, or instructions vital top relief to stricken populace in emergency areas.

Priority

Important messages having a specific time limit, official messages not covered in the emergency category, press dispatches, and emergency-related traffic not of the utmost urgency.

Welfare

Refers to either an inquiry about the health and welfare of an individual in the disaster area or an advisory from the disaster area that indicates all is well. Pass Welfare traffic only after all emergency and priority traffic is cleared. The Red Cross equivalent to an incoming Welfare message is DWI (Disaster Welfare Inquiry).

Routine

Most traffic in normal communications is routine. In disaster situations, handle routine traffic last, or not at all when circuits are busy with higher-precedence traffic.

Clear Text

We use "clear text" (i.e., plain language) for all ARES communications. "Clear text" means words, phrases, and terminology that easily communicates an idea to the average listener. When originating messages, do *not* use Ham "Q" codes, the 10-code ("10-4"), jargon, or any

other terms peculiar to a particular group. For ARES communications, use the preferred words and phrases listed in the Clear Text Lexicon at the back of this handbook on page 109.

The *only* exception to this rule is when you communicate messages verbatim (i.e., when you are *not* the message originator). *Never* change the wording of a message even if laced with jargon or acronyms. For example, the Red Cross uses numerous terms and acronyms that are meaningful only to members of their organization.

The Importance of Brevity

Brevity communicates messages quickly. Embellishing a message with added commentary slows the communications process down and deprives the use of the channel to other stations that also have traffic to pass.

Of course, when asked to pass a message verbatim for someone you are shadowing and he/she is wordy, *don't* abbreviate their message. Your job is to pass *their* message, not your interpretation of it.

Simplex Operation

Simplex operation refers to communications conducted over a single frequency used for both transmit and receive. When passing traffic over a simplex channel,

always wait a couple of seconds to give another station the opportunity to break-in with traffic having higher priority.

Rules for Net Operations

- **Monitor**
  Monitor all communications as closely as possible. This minimizes interference with traffic exchanges and you do not miss essential information regarding the general situation.
- **Be ready**
  Be alert and ready to respond to the NCS for assignments and information requests.
- **Use tactical calls**
  Tactical calls are usually a simple description of the location. For example: Shelter 1, Red Cross, County Comm, CT English School, Felton Fire, Scotts Valley EOC. Tactical calls are used for accuracy and efficiency. Your personal call sign is not used as an ARES assignment identifier; it is virtually impossible for all stations to know at all times which individual operator(s) is assigned at a particular location. Often message handling is facilitated because agency personnel hear their received messages directly.

  You are assigned to a site as a part of the Net, not as an individual. FCC rules must be satisfied, of course,

by giving your call at 10 minute intervals and at the conclusion of an exchange of transmissions.

- **Handling Traffic**
  During a Controlled Net, traffic is passed to other stations only when cleared by the NCS. To contact NCS, it is necessary only to transmit your Tactical Call and the "traffic." If you have traffic for another location, indicate that in the initial call. For example; "County Comm from Boulder Creek Fire, traffic for Red Cross." If the operator at Red Cross is alert, they will be ready for your traffic. (For this reason, among many others, you need to stay alert at all times to be ready to receive traffic intended for your station.)

- **Emergency or Priority Traffic**
  When you have emergency or priority traffic to pass, indicate this in the initial call to NCS. For example; "County Comm from Watsonville EOC, priority traffic for Watsonville Hospital."

Acknowledge

Acknowledge all calls to your station promptly. This applies even if you must tell the calling station to stand-by. Don't forget to get back to the station you have told to stand-by.

- **Listen**
  Don't disrupt other stations. Listen before transmitting. This is, of course, common sense at any time.
- **Keep it brief!**
  This is not the time for rag-chewing. Make all of your transmissions short and to the point. Think before you push the mike button, not after!
- **Think**
  Again, think before you begin talking.
- **Slow-but-sure**
  Efficiency is the watchword—but that doesn't mean talking fast. Speak at a rate that allows receiving stations to write down your message. Talking too fast is one of the most common mistakes made by Net operators. When you are copying messages, don't be afraid to tell the other station to slow down. Unnecessary repeats are a certain sign of poor net operations and wasted time.
- **Use plain language**
  Use clear text in simple, easily understood language. Do *not* use 10-codes, "Q" codes, "John" codes, acronyms, etc. for net operations. They can easily be misunderstood. Remember: personnel from the served agencies should be able to understand any message when they are listening. A

Clear Text Lexicon at the back of this Handbook on page 109 lists the words and phrases that facilitate ARES communications.

- **Pro words**
  Use procedural words ("pro words") to help speed communications between stations. Pro words express a complex idea in a single term. They must be used correctly, of course.

  - **Over**
    Indicates the end of a transmission and is an invitation for the receiving station to respond. Do *not* use this word in repeater operations. The courtesy tone and/or the squelch tail serves the purpose quite well.
  - **Cle**ar
    Indicates the end of a series of transmissions. No reply is required.
  - **Copy**
    Means a message has been received and understood in its entirety. *Copy* does not mean "yes." Do *not* use "QSL," "10-4," or "roger."
  - **Affirmative**
    Is much more easily understood than "yes."
  - **Negative**
    Is much more easily understood than "no."

Check-out and Re-entry

If you must leave your station at any time or otherwise go out of service, always inform the NCS. Only the NCS or a supervisor may authorize the closing of a station, even for a brief time. When you are back on the air, notify the NCS promptly. Example:

"NetCom from Felton Fire --- be out of service for 5 minutes."

"NetCom from Felton Fire --back in service."

Repeaters

Traffic for ARES operations in Santa Cruz County typically uses repeaters. North County (i.e., Santa Cruz, Capitola, Soquel, and so forth) uses the W6FKD ARES repeater and/or the K6BJ repeater (both 2 meters). Watsonville ARES uses the KI6EH repeater (2 meters).

For county-wide mobilizations, the K6BJ and KI6EH link is typically used as a command circuit between north and south county.

When an incident is localized to either the Santa Cruz area or the Watsonville area, the K6BJ and KI6EH repeaters may be unlinked. For example, during the Watsonville Antique Fly-In and Air Show, the repeaters are unlinked.

When an incident involves the entire county, the K6BJ and KI6EH repeaters typically remain linked and used by ARES for county-wide communications with the EOC. The N6IYA and the W6FKD repeaters are in service to provide additional channels as required.

In addition, other repeaters may be used by ARES as required with the permission and cooperation of the repeater owners.

K6BJ/KI6EH Linked Repeaters

The KI6EH repeater serves the Watsonville/Pajaro Valley area. This repeater is installed at Watsonville Fire Station #2 adjacent to Watsonville Airport and is owned by the Santa Cruz County Amateur Radio Club (SCCARC). It operates for the benefit of both club members and for the use of Watsonville ARES during ARES incidents and events.

By understanding the operation of the K6BJ and the KI6EH linked repeaters, you will be able to most effectively pass traffic through the link. Understanding the operation of the link includes:

- The nature of the link
- Passing traffic through the link
- How local traffic affects the link
- Repeater timing issues
- How a phone patch affects the link

Figure 2 illustrates the K6BJ-KI6EH repeater system.

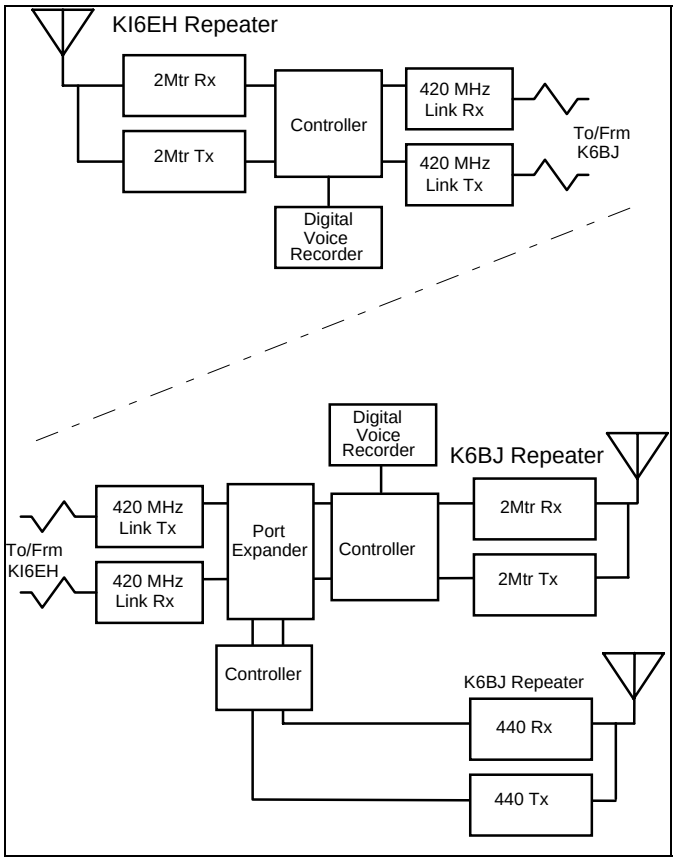


Figure 2 KI6EH/K6BJ Repeater System

Nature of the Link

The K6BJ and the KI6EH repeaters operate independently of one another. They repeat radio traffic received at one end by virtue of a link radio that passes the traffic to the other end. However, local traffic received by each repeater pre-empts traffic coming across the link from the other end.

A *simplex* 420 MHz radio links the two repeaters. This means that while the single link frequency is carrying traffic from KI6EH to K6BJ, it is not carrying traffic from K6BJ to KI6EH.

Passing Traffic Through the Link

While the K6BJ repeater is re-transmitting locally received traffic, the link radio is not "listening" to the KI6EH end—only forwarding the K6BJ traffic to KI6EH.

For a conversation in progress between two stations at the K6BJ-end of the link, the link radio passes the traffic to the KI6EH-end of the link where it is heard on the KI6EH output.

How Local Traffic Affects the Link

While a conversation is in progress at the K6BJ-end of the link, if a station at the KI6EH end keys-up, the KI6EH repeater ignores traffic coming across the link

and repeats the locally received station. Also, because the link radio operates simplex, the KI6EH-local station's traffic is not sent to the K6BJ end of the link.

Never presume that your traffic passes through the link. *Always* acknowledge traffic addressed to you!

Repeater Timing Issues

Understanding the timing between the repeaters is an issue critical to passing traffic from one end of the link to the other. Each repeater (and K6BJ in particular) has a minimum "bring-up" delay. This delay is a function of PL decode, propagation delay through the controllers, and "hand-off" from the link radio to the repeater transmitter, plus any PL decode delay in the radios of listeners. When the K6BJ/KI6EH repeaters are carrying your ARES traffic, use these guidelines:

- *Wait* a full second after you key up before you begin to talk.
- *Wait* for the courtesy beep that follows another's transmission before you key-up. Ideally, wait until the repeater's transmitter drops before you key up. This delay allows a station with higher priority traffic to break in if necessary.

- If a station is operating with a cross-band repeater to reach the local repeater, *wait* for the repeater drops before transmitting. A cross-band repeated station cannot transmit until his/her repeater transmitter drops. (Refer to Cross-Band Repeaters, below.)

Never presume that your traffic from Watsonville to a Santa Cruz station will be heard through the link. Always look for an acknowledgment from the station for which your traffic was intended.

The local repeater *always* pre-empts the link. If traffic is being passed from K6BJ to a station listening on KI6EH and a Watsonville station keys-up at the same time as the Santa Cruz station, only the Watsonville station is heard on the KI6EH repeater.

ARES Repeaters

Santa Cruz County owns three repeaters purchased and reserved for ARES use. Each has a PL of 94.8 Hz. The W6FKD repeater operates on 146.835 MHz (–) and is located in the Loma Prieta area of Summit Road. This repeater serves north and central Santa Cruz County, with coverage to Highway 1 and Bay Ave. (and to UCSC depending on propagation conditions). The N6IYA repeater operates on 146.745 MHz (–) and is located in the area of Bonny Doon. The KD6FXQ repeater operates on 147.015(+) and is

located on Arthur Road in Watsonville and serves the south county area.

Cross-Band Repeaters

A cross-band repeater is a dual-band radio capable of receiving on one band and simultaneously retransmitting on the second band what it receives on the first band. This feature is commonly available on current production dual band hand-held and mobile radios.

Cross-band repeat operation can be particularly useful for ARES work when your location precludes a clear path to the net control station and/or other stations with whom you have to communicate. However, cross-band repeater operation is not without its limitations, some of which include:

- Cross-band repeat is a *half*-duplex operation: you cannot transmit through the cross-band repeater while it is receiving on the "main" band.
- You cannot use a phone patch for the above reason.
- Cross-band repeaters could add unmanageable delays into the link.
- FCC station ID requirements that need compliance.

When you are using a cross-band repeater to extend your range, *always* so advise net control and the other

stations on the net. This advisory alerts them to be more aware to how quick they may be "on the trigger."

Always identify the cross-band repeater when you identify (e.g., "this is KD6XYZ through the WA6XYZ cross-band repeater").

Traffic Logging

For both resource and tactical nets, a log must be kept. Many times when there is a lot of activity you will find that you need to refer to it often to keep track of what questions have been answered and what stations are on the air. A log is a running commentary of what is happening at your station. It also helps the person that takes over for you in case you forgot a detail in your briefing to them. Many times event personnel will ask to have a copy of your log or ask when an event occurred.

The log can be kept in many forms. Some agencies have a preprinted form, others use a notebook or ruled paper. If your are at an indoor location, 8½ × 11 is the best size. If outside, a smaller notebook may work better. At a minimum, log the following items:

- Nature of the Net: open or directed
- Date and time of each event
- If it is a message - who is it to and who is it from
- Directions given from the Net Control Station

- The Tactical call signs of each station on your Net
- The frequencies of other nets operating during the event

Legibly print log entries, don't use cursive writing. Remember, someone else must also read your log.

A sample log follows.

Date/Time	To/From	Item
9/27 17:00		Watsonville Red Cross activated and opened. W6AAA on station.
17:05		Checked in with NCS. Our tactical call sign is Watsonville Red Cross.
17:35	Allen/Nancy	Open Veterans Hall Shelter expect 100 people tonight.
18:10	Nancy/Allen	Veterans Hall Shelter will be open by 1830 hrs.
19:00		W6CCC relieves W6AAA. [W6AAA's signature to close his log]

Reporting Emergencies

The procedures for reporting emergencies while "on-station" during ARES events varies according to the nature of the ARES event. These procedures are also affected by whether a controlled or open net is in operation.

This sounds obvious, but to effectively report an emergency, you need to know where you are. Continually practice observing landmarks and other important clues to your present location.

Due to their informal nature, open nets may or may not have a net control. Thus, the manner in which you pass emergency traffic can depend on these and similar factors:

- Is the net simplex or repeated? (Refer to Net Operation on page 59)
- If the net is simplex and has a net control, does the net control station have a telephone at hand?
- If the net is repeated, does it have an autopatch and do you have the access code?

When reporting an emergency via a controlled net, always get permission from net control before passing your traffic. Depending on the ARES event, net control may already have a direct connection to the 911 center in which case you will pass your traffic to net control.

For example, during an event affecting the entire county, net control will be at the county Emergency Operations Center (EOC). Also, when supporting the Emergency Services Unit of the annual Watsonville Air Show and Antique Fly-in, the ESU operates using SEMS and directly dispatches emergency services. During this air show, ARES radio operators pass *all* traffic—including emergencies—through net control.

General Procedures

Your location can affect the type of information and the manner in which you pass emergency traffic. During an ARES operation, regardless of the nature of the emergency, however, these steps apply:

Step 1. Announce "Break, break, break [call sign]."

Step 2. Release your key and listen to ensure that you have the radio channel. If the net is controlled, the net control will give you clearance to pass your traffic.

Step 3. Pass your emergency traffic:

- Nature of the emergency
- Location of the emergency
- Details of the emergency (e.g., Injured bicyclist, 43rd Ave. adjacent to Jade Street Park, cross street Jade Street, 35 yr. old male,

possible broken leg and facial injuries, and so forth.)

If you are passing traffic through an auto-patch to a 911 operator, immediately announce that your call is via Amateur Radio, give the nature and location of the emergency. Then, wait for and respond to the operator's questions. 911 operators have a rigid protocol that they must follow. Attempting to give them more information than they are prepared for will slow down the process.

Also, if the 911 operator asks a "yes/no" type of question, respond with *yes*, *no*, or *I don't know* — responding anything else will cause them to repeat the question.

Urban Locations

Describing the location of emergencies occurring in urban locations is fairly simple since you have a readily available grid system to use: the streets! When describing the location of the emergency, give the street address and the nearest cross street or access point to the location of the emergency.

Rural Locations

Giving your location in a rural area requires more descriptive information than an urban location. If you are on a state highway (e.g., Hwy 9), give your position in terms of the highway and the nearest

CalTrans mileage marker (those small white signs on the edge of the road). These markers are coded with the county and mileage to the 10th of a mile.

If on a county road, give the nearest house address plus as much other information as possible that will emergency teams find your location.

In San Lorenzo Valley, the street addresses on Hwy 9 are in 10ths of miles from the Hwy 1-Hwy 9 junction. For locations off of Hwy 9, the addresses are in 10ths of miles from Hwy 9.

Wild Land Locations

Due to the terrain, wild lands pose some special problems that include canyons that can block a direct path to a repeater and ambiguous location information. Reporting an emergency from a fixed location is fairly simple since net control will know where you are by your tactical call sign. However, if you are continually moving (which you could be when operating as a shadow), you will need to be constantly aware of your location. Give the location of a wild-land emergency using fire roads, trails, and streams (if you know its name) as references. Also, if you have access to a topographic map (and you have your compass with you, don't you?), give the latitude and longitude of the location or use the township grid points as the CDF does.

Wild land emergencies are more effectively reported to the CDF; call CDF directly when possible.

Marine

When you are on an inland waterway or within ¼-mile of shore, correlate your position (i.e., bearing) to known landmarks. If you are on a coastal waterway, give the latitude and longitude of your location. If you are relaying calls to the Coast Guard, be prepared to provide the following information they require:

- Identify yourself by name and, if on-shore and connected via a phone patch, that your call is via Ham radio phone patch.
- *Report the position of the vessel(s) involved. Give the vessel's latitude and longitude if known.
- *Number of persons aboard.
- *Nature of distress.
- *Is there immediate danger of sinking (yes or no)?
- Name of vessel in distress.
- Registration or document number (CF number).

- Call sign (if known) of distressed vessel.
- *Length and type of vessel (sail, power, fishing, etc.).
- *Hull and trim colors.
- *Descriptive features (number of masts, radome, etc.).
- Weather conditions at scene of incident.
- Emergency gear aboard (life raft, life jackets, etc.).

The information marked with an asterisk (*) is the minimum required by the coast guard. Obtain as much information as possible prior to making the call. This will save valuable time.

If you are aboard the vessel in distress, the Coast Guard will instruct you to immediately have all persons aboard don life jackets.

HazMat Emergencies

Hazardous materials incidents pose very special problems due to ignorance of the nature of the situation. During hazmat incidents injuries frequently occur because of this ignorance or respect for what is involved.

The US Department of Transportation defines what materials are hazardous. Such materials range from explosives and radioactive materials to poisons, flammable compressed gases, corrosives and combustibles.

The Chemical Manufacturers Association (CMA) established CHEMTREC© as a public service to provide first responders, the transportation industry, medical professionals, and others with access to response information and technical assistance from chemical industry experts for incidents involving hazardous materials.

The CHEMTREC Center can be reached from anywhere in the continent via 1-800-424-9300. This phone number is also displayed on a variety of containers carrying hazardous materials, including rail cars and tank trucks so that first responders and others at the scene of an incident can immediately contact CHEMTREC for assistance. The CHEMTREC Center is staffed 24-hours a day, 7 days a week by trained communicators.

If you are the first person on the scene, pass your emergency traffic as described above under General Procedures (page 50). If possible, *and without endangering yourself*, attempt to identify the materials involved from placards affixed to the transport vehicle. Otherwise, wait for the responsible

authorities to arrive. In addition to the general emergency reporting procedures, follow these guidelines:

Consider any unknown materials to be hazardous until declared otherwise by a competent person or agency.

Nothing within the scope of ARES training prepares you to be part of a HazMat response team. Other than to pass traffic within the scope of an official assignment relevant to a HazMat incident, stay clear of the incident and HazMat personnel doing their job.

- Stay upwind at least a half of a mile away.
- Be *patient*---don't become a patient.
- Radio equipment can be damaged by fumes; wrap it in plastic if possible.
- Flammable vapors could be ignited by operation of your equipment.

Some of the most common items you might encounter include:

DOT#	Description
1005	Anhydrous Ammonia
1062	Methyl Bromide
1203	Gasoline
1971	CNG (compressed natural gas)
1977	Liquid Nitrogen
1978	Propane
1993	Diesel Fuel
2187	Liquid Carbon Dioxide
9151	Triethanolamine Dodecylbenzenesulfonate

Part 6 Net Operation

A "net" (derived from "network") means a group of communicators sharing one or more radio channels for the purpose of moving traffic (information) between them. ARES nets have the specific purpose of moving traffic that concerns the event at hand. Nets can be either *open* or *controlled*.

Some basic principles apply to all nets. These principles are absolutely essential during emergency operations. Without net discipline, chaos results. The Net Control Station (NCS) is responsible for proper operations, whether a real emergency exists or, if the operation is for a public service event or for training.

Open Net

If the NCS is using an *open net*, you may contact anyone on the frequency.

Controlled Net

If the NCS is using a *controlled net*, then you must contact the NCS to obtain permission to talk directly to another station. A single experienced operator can handle a busy and complicated net under normal circumstances. However, more than one operator may be required at a site during disaster operations. The second operator

may assist in copying messages and in keeping track of all the participating stations. Formal traffic is recorded and logged. Failure to keep accurate records can create many operational problems.

Tactical Net

A Tactical Net handles message traffic between served agency operational locations. This would include Red Cross, CDF, EOC, a disaster site, and so forth.

Command Net

The Command Net is used by the Shift Supervisor and the leadership at an event to communicate to each other to resolve Amateur Radio operations-related problems. If there is sufficient activity this Net should be moved to a separate frequency.

Resource Net

The Resource Net is implemented when operational (tactical) communications activity would be impaired by traffic relating to the ARES personnel staffing and other administrative activity. Assignment and coordination of Amateur communication personnel and equipment are handled on the Resource Net.

Do not request situation or incident update information from either the Tactical NCS or the Resource NCS.

The Resource Net Control provides scheduled updates about the situation/incident as frequently as practical. Updates normally occur via regularly scheduled broadcasts. The Resource NCS periodically announces the scheduled times for these broadcasts. Situation update summaries are broadcast to apprise monitoring Amateurs of the status of the emergency and to recruit volunteers.

The summary is normally prepared by the EC, PIO or other supervising person. Only official facts are broadcast; i.e., no personal commentary! Remember the media and general public are probably monitoring. The "official" summary is rebroadcast until an authorized update is provided to the Resource NCS.

The Resource NCS broadcasts the summary report, with updates, on the hour and half hour. Urgent updates are broadcast as appropriate. The following is an example of such an information broadcast:

> Attention all stations. This is _____, Resource Net Control station. Due to the current (fire, flood, earthquake, etc.) situation, the Santa Cruz County Amateur Radio Emergency Service is involved in emergency communications for (the

County OES, Red Cross,) . . . .please stand by for an update on the situation. (Broadcast a summary of situation received from the shift supervisor.) Situation update summaries are broadcast every 30 minutes. The next update will be at _____ local time. Communicators are needed at the following locations (locations, shift times, and so forth).. If you are available, please call this station. This is _____, Resource Net Control, standing by for check-ins.

Packet Net

When a long list of information needs to be sent from one location to another, packet radio is a more efficient and effective way of passing that traffic than via voice. With packet, lists do not need be repeated, there is a permanent record of the traffic, and both ends do not have to be at their radios at the same time. Also, if a printer is available (as it should be), you can print a hard copy of the message for the recipient.

The following is the packet standard operating procedure for Watsonville ARES:

- When a Packet Net has been established, Net Control posts a bulletin on the Bulletin Board System (BBS) giving the packet tactical calls for each location. Tactical call signs can be a maximum of 6 letters.

- Traffic is sent to a station by posting a bulletin to the tactical call sign of the receiving station.
- The subject of the bulletin is the tactical call sign of the receiving station

The body of the bulletin must contain:

1. The tactical call of the sending station.
2. Who the message is to at the receiving served agency.
3. Who the message is from at the sending served agency.
4. The body of the message.

Example:

SB WATRC
FROM SCRC WB6AAA
To Shelter Manager
From Red Cross Director [Carol]

How many adults and children do you have registered at this time?

How many dinners do you estimate serving tonight?

ARES Packet Procedure

Messages should be sent as a bulletin as SB XXXXXX@SCEOC where "XXXXXX" is the tactical call of the receiving station.

A bulletin will be posted listing all the tactical calls for that activation. The body of the bulletin should contain the tactical call of the sending station, the name and served agency of the sending and receiving party.

Tactical Calls for commonly used shelters:

CORR	Corralitos Shelter
FAIR	Santa Cruz County Fair Grounds Shelter
JADE	Jade Street Shelter
LKVIEW	Lakeview School, Watsonville
SCEOC	Santa Cruz County Emergency Operation Center
SCRC	Santa Cruz Chapter American Red Cross
STJOHN	St. John Shelter, Felton
WATRC	Watsonville Chapter American Red Cross
WATVA	Veterans Hall Shelter, Watsonville

Basic Packet BBS Commands

The following are the most commonly used commands for a packet bbs:

Abbr	Command	Function
B	Bye	Disconnect

Abbr	Command	Function
CM	Copy Msg	Make a copy of the message for another station
D	Download	Download files (i.e., read files that are posted on the bbs)
E	Edit To, Frm, etc.	Edit the message header (to, from, etc.)
H	Help	Gives a list of commands
K	Kill	Erase a message
L	List	List messages
R	Read	Read a message
S	Send	Send a message
U	Upload	Upload a message to the bbs
W	What	Gives a list of files on the bbs

Checking Into a Net

The general procedure for checking into a net follows:

- Respond when the net control calls for check-ins (typically a solicitation from a Resource Net Control).
- Call net control and announce yourself as available.

- Call net control and announce yourself as reporting in at your shift assignment location (as appropriate).

Checking Into The Resource Net

Always check in with the Resource Net for assignments. The Resource NCS has up-to-date information regarding the personnel and equipment requirements for the operation. When volunteering for an assignment, the Resource NCS will give you information regarding length of assignment, personal equipment requirements, and anything else you need to know before reporting to a site. If you are not told this information, *ask*—you may be in real trouble if you report to a site with the wrong radio equipment or inappropriate or inadequate clothing.

Resource Net Control should assure that volunteers possess skills commensurate with the requirements of the task to which they will be assigned. If training is needed, it is the responsibility of the Resource Net to provide it.

Net Control

The net control is in charge of the net and net discipline in the same manner as a public service dispatcher. In a controlled net, all traffic passes through net control. Before you can pass any traffic to another station you must first obtain the

permission of the net control. A good form to use when requesting permission is:

Net control, this is Veterans Hall Shelter. I have traffic for E.A. Middle School Shelter.

The net control represents the authority of the EC or the served agency.

EC/Communications Officer

The Emergency Coordinator (EC) is in charge of and responsible for Watsonville ARES operations. His duties include coordinating ARES with the heads of local served agencies, resource management, coordination with other ARES and NTS groups, etc. (Other agencies refer to the individual responsible for their communications as a "Communications Officer" for which the ARES EC is the equivalent.)

During a net, controlled or open, the EC can usurp authority directly from net control. Under such circumstances, the EC makes it clear that it is he giving instructions.

Shift Supervisor

Usually DECs, ECs or AECs assume the duties of Shift Supervisor since the position demands considerable training and experience. Shift

Supervisor (SS) is a job designation created for a particular incident where EC is a permanent title.

The Shift Supervisor must be able to accomplish the following, either personally or by delegation of authority to a volunteer:

1. Help Net Control Station (NCS) with policy and procedure questions.
2. See that NCS follow the basic rules for net operation.
3. Open and close nets.
4. Coordinate operations with the Incident Commander.
5. Ensure that shift changes are performed in an orderly manner.
6. Conduct periodic situation briefing broadcasts.
7. Ensure Amateurs on shift are fed and have the resources they need. Ensure that shift changes are made frequently and that Amateurs stand down between shifts, if possible.
8. Establish Net traffic priorities, including NTS liaison.
9. Establish liaison with adjacent operational area to allocate resources, both Amateur and government.

10. Ensure that Amateur Radio resources are kept operational.

Part 7 NTS

The National Traffic System handles Health and Welfare (H&W) traffic, particularly in times of emergency. A system of traffic nets is in daily operation throughout the United States and Canada, as well as in a few other countries where law or treaty permits. One of the reasons for the daily operation is to assure the readiness of a cadre of experienced operators.

During an incident, you may be asked to pass H&W traffic. Red Cross shelters are the most likely assignment from which you will pass H&W traffic. However, unless the station's primary purpose *is* H&W traffic, all traffic directly related to the station has priority. For example, a Red Cross shelter station's primary function is to pass traffic for Red Cross shelter managers and other officials.

Message Handling

Use uniform procedures to ensure efficient traffic handling throughout the system. It is essential that all messages originated within local ARES operations conform to those procedures—whether messages enter the system via Packet Radio or directly into the NTS. Every ARES member should be familiar with the NTS approved message format. An in-depth discussion of the NTS is beyond the scope of this handbook. Complete

NTS information and procedures, including message composition, are covered in the following publications.

- The ARRL Handbook
- The ARRL Operating Manual
- Public Service Communications Manual (ARRL)

Watsonville ARES policy requires the use of packet radio whenever possible to pass H&W traffic during an incident. This policy ensures that tactical voice channels remain free for priority and emergency traffic.

Sending Welfare Messages via Packet

All ARES members should be skilled in handling formal written traffic in as many modes as possible. This ability will be particularly valuable during disasters. Packet radio, fast becoming the primary means of handling Health and Welfare traffic during emergency operations, is the preferred method in Watsonville ARES. The following instructions assume a knowledge of basic packet operating procedures.

Use the ST Command to Send Traffic

After connecting with the packet BBS station and receiving the normal mailbox prompt you must tell the BBS of what you want to do. Simply type “ST” (to send NTS traffic) instead of the normal “SP” (to send a personal message) or “SB” to send a bulletin. Follow the “ST” with a space followed by the 5 digit destination

ZIP Code (ST XXXXX) a space and "@NTSXX". The "XX" is the official two-letter postal abbreviation for the destination state or province. If the message is destined within California, omit the "@" field entirely. If a full Zip Code is unavailable, use the first 3 digits for the city followed by "XX." If no Zip Code at all is available, send it to "ST NTSXX @ NTSXX." This creates a delay, but the message should eventually get through. You must always use this standard format:

ST ZIP CODE @ NTSXX

Example	Comment
ST 60625@NTSIL	Traffic to Chicago, Illinois
ST 94568	Traffic within California
ST 96823@NTSHI	Traffic for Hawaii
ST 841XX @NTSUT	Traffic for Utah - full ZIP unknown
ST NTSCO@NTSCO	Traffic for Colorado - ZIP unknown
ST NTSPQ@NTSPQ	Traffic for Province of Quebec, Canada
ST NTSPR@NTSPR	Traffic for Puerto Rico

The Subject

When the BBS prompts for the Title, the type QTC 1, the destination city and the telephone are a code plus the first three digits of the number, if known. For example:

QTC 1 Chicago IL 606237
QTC 1 Aurora CO 303366

Addressee

Give a complete address, including a telephone number. For example:

John w. Jones
12334 West 59th Street
Chicago IL 60625 312-444-1234
BT
Betty Smith
2989 Willow Lane
Petaluma CA 94952 707-123-9999

The Text

The full NTS radiogram is entered as the text of the packet message. This must include all the required message components in the correct order. Only one radiogram may be included in each packet message. Remember that the end of a message must always be indicated to the BBS by entering ^Z (CTRL Z) or "/ex" on a separate line. For example:

ST80011@NTSCO
QTC1AURORA CO 303-543
NR2WN6ZZZARL 4AptosCA0235Mar3
Mr. and Mrs. Donald Jones

12333 Easy Street Apt 25
Aurora CO 80011 303 543 2111BT
ARLONEARLFOUR BT
BILL Johnson
9999 Rainbow Avenue
Santa CruzCA95061408 555 1234 AR<RTN>
^Z(CTRLZ)OR/EX<RTN>

Make the text of the message brief. Carefully edit the contents for both accuracy and brevity. It may be desirable to use standard ARRL message abbreviations when handling welfare traffic. These standard coded abbreviations take the place of more lengthy messages — they use only two or three words. The following are appropriate for disaster-related health and welfare traffic.

ONE	Everyone safe here. Please don't worry.
TWO	Coming home as soon as possible.
THREE	Am in _____ hospital. Receiving excellent care and recovering fine.
FOUR	Only slight property damage here. Do not be concerned about disaster reports.
SIX	Will contact you as soon as possible.
TWELVE	Anxious to hear from you. No word in some time. Please contact me as soon as possible.
THIRTEEN	Medical emergency situation exists here.

FOURTEEN Situation here becoming critical. Losses and damage from _____ increasing.

FIFTEEN Please advise your condition and what help is needed.

SIXTEEN Property damage very severe in this area.

EIGHTEEN Please contact me as soon as possible at _____.

NINETEEN Request health and welfare report on _____. (State name, address and telephone number.)

Part 8 ARES and RACES

The Radio Amateur Civil Emergency Service (RACES), was founded in 1952 with the help of the ARRL and operates within the auspices of the Federal Emergency Management Administration (FEMA). RACES works principally at the local level through the local and state Office of Emergency Services (OES) to provide emergency communications in the event the FCC authorizes its use.

RACES Function

RACES, as part of the Amateur Radio Service, provides radio communications for civil defense purposes only. It can be activated during periods of local, regional, or national civil emergencies. These emergencies are not limited to war-related activities but can include natural disasters.

Service Overlap

RACES operation is authorized only by the FCC pursuant to a request by the OES. It is strictly limited to official civil defense activities in the government service in the event of an emergency communications situation. It is this limitation of RACES where ARES picks up the slack. RACES supplements local civil agency communications until the affected agency's communications is fully

restored. RACES does nothing to help disaster relief agencies, such as the Red Cross. ARES typically takes over when the RACES function completes.

In Santa Cruz County, ARES members who are registered with the county OES as Disaster Service Workers are "de-facto" members of RACES. When RACES is activated, we are too—as RACES members. When RACES' job is complete, we change to our ARES hat and continue on. Since the same Hams are involved in both RACES and ARES, this process is relatively seamless.

This section lists the agencies within Santa Cruz County that ARES typically serves. It also lists radio frequencies of interest to ARES operations. These frequencies include Amateur radio channels for voice and packet, civil agency frequencies, and useful private agency frequencies.

Part 9 Served Agencies

This section provides detailed instructions for reaching the locations likely to be staffed during a disaster. Since Thomas Bros. does not publish maps for Santa Cruz County, Watsonville ARES uses the Watsonville, Santa Cruz, and Monterey Bay Region maps published by the California State Automobile Association of AAA. The coordinates given refer to these maps. Map coordinates are keyed to AAA road maps using the following codes:

- W -- Watsonville, Aromas, Las Lomas, Moss Landing, Prundale and Vicinity.
- S -- Santa Cruz, Capitola, Scotts Valley, Aptos, Ben Lomond, Boulder Creek, Felton, Live Oak, and Soquel.
- MBR -- Monterey Bay Region for Santa Cruz County and southern Santa Clara County (this is a wide area map and includes coastal areas from Ano Ñuevo to Big Sur and inland from the coast to the western edges of Stanislaus and Merced Counties.)
- WB = West Bound, EB = East Bound, SB = South Bound, NB = North Bound

American Red Cross, Santa Cruz Chapter

2960 Soquel Avenue - Santa Cruz, CA 95062 - Telephone (408) 462-2881 [S-H8]

From NB Hwy 1, exit at Soquel Avenue:
As you exit the freeway, bear left through "Y" intersection and to traffic light (Union gas station on your right). Left turn to south side of highway (away from hills). Turn left at traffic light (east) and proceed along frontage road.

Turn right into the parking lot ½-block past the 2nd traffic light.

From SB Hwy 1, exit at Soquel Avenue:
Turn left at traffic light (east) and proceed along frontage road. Turn right into the parking lot ½-block past the 2nd traffic light.

Enter the building through the front entrance. The Amateur Radio room is at the rear of the building.

American Red Cross, Watsonville Facility

73 Hanger Way - Watsonville, CA 95076 - Telephone (408) 722-3801 [Map coordinates W-J6]

From Santa Cruz:
Take Highway 1 SB to the Airport Blvd. exit. Turn left at Airport and cross over the top of the freeway toward the mountains. Go approximately 0.25 mile

to Hanger Way on the right (look for the Wonder Bread surplus store on the near corner). Go to Red Cross about 1½ blocks further on the left side of the street.

From Monterey or Salinas:
Via Highway 1 NB. Exit Airport Blvd. Follow directions as from Santa Cruz, above.

From Gilroy and Hwy 152 east:
Proceed WB to Holohan Rd. Turn right on Holohan. Go approx. 4 miles (Holohan becomes Airport Blvd.) past Green Valley Rd at Watsonville Community Hospital) to Hanger Way on left. Turn left onto Hanger Way (look for the Wonder Bread surplus store on the far corner). Go to Red Cross about 1½ blocks further on the left side of the street.

California Division Of Forestry (CDF)

6059 Hwy 9 - Felton, CA 95018 - Telephone (408) 335-3020 [S - C2]

From Hwy 17 north or south:
Exit Mount Hermon at Scotts Valley. Proceed 3.8 miles through Scotts Valley and to the intersection of Graham Hill Road (7th traffic light). Turn right, cross river, then left on Hwy 9 at the next traffic light. Proceed 0.3 miles to the CDF station on the right.

From Highway 1 north or south:
Take Hwy 17 NB to San Jose. Exit Mt. Hermon Rd., Scotts Valley and proceed as above directions.

The Amateur Radio installation is located in the communications center, adjacent to the antenna tower.

Red Cross Designated Shelters

The Red Cross contracts to use numerous candidate facilities to use as shelters when the need arises. Most of these are school facilities, both public and private. What follows is a list of the shelters the Red Cross is most likely to open first.

CT English School

23800 Summit Road - Los Gatos, CA 95030 -Telephone (408) 353-1123 [MBR - C4]

From Hwy 17:
Exit Summit Road. Bear right away from hwy approximately 2.7 miles to the school on your right (look for the first paved right turn after Morrell Cut-Off).

From Hwy 1
Exit Porter Ave, Soquel and proceed toward mountains past Soquel high School. Porter becomes Old San Jose-Soquel Rd. Go to Summit Road (“T”

intersection) and turn left. Go approx. 1 mile to school on the left.

Dominican Hospital

1555 Soquel Drive - Santa Cruz, CA 95065 - Telephone (408) 462-7700 [S-H7]

From Highway 1 SB from Hwy 17:
Exit Soquel Avenue and bear right. Cross over the freeway to the next traffic signal. Left turn into the Dominican Hospital parking lot (Emergency Entrance).

From Highway 1 NB from Soquel:
Exit Soquel Avenue and bear left. Turn right at the traffic light, then left into the Dominican Hospital parking lot (Emergency Entrance).

Enter the Emergency Room entrance of the hospital and ask for the security officer. Ask security officer for directions or escort to the Amateur Radio room.

E. A. Hall Middle School

201 Brewington, Watsonville 95076
Telephone: 728-6238 [W - 8M]

From Hwy 1
Exit Hwy 129 (Riverside Drive) and go toward mountains approx. 2 miles to Lincoln. Turn left on Lincoln and right on Palm. School occupies *south-east* corner of Palm and Brewington. Enter school from Palm.

Jade Street Park Community Center

4400 Jade Street, Capitola, CA 95010
Telephone: 475-5935 [S- K10]

From Hwy 1
Exit 41st Ave and go toward ocean (away from hills) 1 mile to Jade Street. Left on Jade St. for 0.25 mile to end of street and Jade Street Park on right.

Lakeside School

19621 Black Road - Los Gatos,. CA 95030 Telephone(408) 354-2372 [MBR -- B4]

From Hwy 17:
Exit Old Santa Cruz Hwy Take frontage road past CDF Alma Fire Station and cross over hwy Proceed up Black Road approx. 2 miles to school on the right.

Lexington School

19700 Santa Cruz Highway - Los Gatos, CA 95030 - Telephone (408) 354-9340 [MBR - B4]

From NB Hwy 17:
Exit Bear Creek Road/ Old Santa Cruz Hwy Turn right at Old Santa Cruz Hwy and go approx. 0.5 mile to the school on the right.

Loma Prieta Community Center

23800 Summit Road - Los Gatos, CA 95030 [MBR - C4]

Follow the same directions as above for C. T. English School

Redwood Estates Fire Department (Santa Clara Central Redwood Station #4)

From NB Hwy 17:
Exit Holy City. Go under highway and proceed 0.25 miles. Station is on the right. [MBR - B4]

Remote Disaster Center (Loma Prieta Volunteer Fire & Rescue Station)

17445 Old Summit Road - Los Gatos, CA 95030 - Telephone (408) 353-8819 [MBR-B4]

From Hwy 17:
Summit Road exit. Bear right (east) away from hwy approximately 0.7 miles to *second* Summit road-Old

Summit Road intersection. (Old Summit Road is a loop leaving Summit Road shortly after the Hwy 17 junction and rejoining Summit Road 0.7 miles later. Intersection is a short distance past the Morrrell Road intersection on the left.)

Proceed about 100 yards past intersection to the Fire Station on the right and park on the left side of the building, leaving room for the fire trucks to maneuver around the building and trees

From Old San Jose-Soquel Road
Proceed to Summit Road intersection. Turn left and go approx 3 miles to Fire Station on left. Refer to directions from Hwy 17, above.

Salvation Army

721 Laurel Street - Santa Cruz, CA95060 - Telephone (408) 426-8365 [S - K5]

SB Hwy 1 from County Line:
Drive 2.0 miles from the Santa Cruz City limit sign. Turn right on Laurel Street (5th traffic light). Turn left 0.4 miles to the building that is located on the right side of the street.

NB Hwy 1 from Hwy 17 junction:
Go north on 1.5 miles from the Hwy 17 junction to Laurel Street (5th traffic light). Turn left 0.4 miles to the building on the right side of the street.

Santa Cruz County Fairgrounds

2601 E. Lake Ave (SR 152), Watsonville, CA 95076 [W - K10]

From Hwy 1
Exit Airport Boulevard. Proceed approx 4 miles to Hwy 152 on Hwy 152 approx 1.5 miles to Fairgrounds on the left. [W-K10]

Santa Cruz County Emergency Operations Center (EOC)

Located at Santa Cruz County NetCom in De La Veaga Park - Santa Cruz, CA 95060 - Telephone (408) 454-2900 [S-H7]

From Highway 1 take Morrisey exit and proceed north [toward hills]. Follow signs to golf course. Turn right after the golf course club house parking lot and proceed 0.3 miles to facility on the left. Park in vistors parking lot at near end of building.

St. John's Church

Hwy 9 at Russell Ave, Felton (408) 335-4657 [S - C2]

Follow directions to Calif. Div. of Forestry. Near California Department of Forestry on far corner of Russell and Hwy 9 when SB Hwy 9.

A J-pole antenna is stored in furnace room in the shelter area. It mounts in a bracket just outside the adjacent door. Find a ladder to install.

Watsonville Community Hospital

298 Green Valley Road - Watsonville, CA 95076 - Telephone (408) 724-4741 [W - J8]

From Hwy 1:
Exit Airport Boulevard. Proceed approx 2.2 miles to Green Valley Road. (After crossing Freedom Boulevard, the road becomes Holohan Road.) Turn right into the hospital parking lot past Green Valley Road intersection.

From Gilroy and Hwy 152 east:
Proceed WB to Holohan Rd. Turn right on Holohan. Go approx 1.5 miles to Watsonville Community Hospital on left and near side of Green Valley Road intersection.

From Holister and Hwy 129 east:
Turn right on Lakeview ("T" intersection). Turn left on College. Proceed approx 2.2 miles to Watsonville Community Hospital on left and near side of Green Valley Road intersection.

The radio equipment is located in the admissions area. Contact the Security Department for assistance.

Veteran's Hall Watsonville

211 E Beach, Watsonville, CA 95076 [W - 7M]

From Hwy 1

Exit Hwy 129 (Riverside Drive). and go toward mountains approx 2 miles to Main St. Turn left ⅛-mile to Beach St. Turn right and go to Veteran's Hall on left.

Park in private lot off Eatons (if before 5 PM weekdays, be sure to tell receptionist at the office building that you are with the Red Cross at the shelter).

Part 10 Radio Frequencies

Amateur Radio Channels

2 Meter Channels and IDs:

Ch	ID	Freq	Tone	Location	Use
Rptrs					
1	WR6AOK	147.120+	94.8	Felton	SLV ARC
2	N6IYA	146.745-	94.8	Bonny Dune	SLV ARES
3	K6BJ	146.790-	94.8	Santa Cruz City*	SCZ ARC
4	WB6OQS	146.760-	151.4	Hi-Level	SCV COM 1
5	W6FKD	146.835-	94.8	SLV/SCZ	SCZ ARES
6	K6FB	145.450+	100.0	Las Cumbres	Las Cumbres ARC
7	K6LY	146.970-	94.8	Monterey	Monterey ARES
8	KI6EH	147.945-	94.8	Watsonville*	SCZ ARC
* Linked repeaters (K6BJ can also be linked to K6BJ 440.925 MHz					
Smplx					
9	Alert	145.695		State-Wide	State-Wide Alert
10	Resource	146.535		SCZ County	Resource

Ch	ID	Freq	Tone	Location	Use
11	Com 1	147.510		SCZ County	Red Cross
12	Tac 1	147.465		Santa Cruz City	Tactical
13	Com 2	147.480		San Lorenzo Vly	Command
14	Loma Prieta	147.495		SCruz Mountains	Command
15	Simplex	147.720		SLV Emergency	When WR6OAK is off air
Packet					
16	Packet-1	145.070		SCZ/SVL (KI6EH)	BBS Connect/ Direct
17	Packet-2	145.060		SLV (N6IYA-2)	BBS Connect/ Direct

440 MHz Channels and Designators:

Chl	ID	Freq	Tone	Location	Use
Rptrs					
1	N6IYA	440.850+	94.8	Castle Rock	Alert/ Wide Area
2	AB6VS	440.550+	94.8	Loma Prieta	Loma Prieta ARC
3	K6BJ*	440.925+	123.00	Santa Cruz	SCZ ARC
4	K6LY	444.700+	123.00	Monterey	Monterey ARES
5	W5RBK	440.100+	100.00	Santa Clara	Santa Clara ARES
7	Nat'l Smplx	446.00			
8					
* Can be linked to K6BJ 146.790					
Smplx					
10	Simplex	446.000		SCZ County	Simplex/ Tactical
11	Simplex	440.850		SCZ County	Simplex/ Tactical

Additional Voice Frequencies

No.	Freq	PL	Call	Use
1	145.370 +		KB6LT	Belmont
2	146.115 +		WB6ADZ	SCL Val. ARES
3	146.850 -		WA6QFR	San Mateo
4	146.925 -	114.8	WA6TOW	San Mateo
5	147.390 +	151.4	W6PIY	West Val. ARC
6	147.420		Simplex	Hospital 1
7	147.450		Simplex	Com 1
8	147.570		Simplex	TAC 3 Wats
9	144.120		Simplex	RACES Comm 1
10	144.140		Simplex	RACES Comm 2
11	144.160		Simplex	RACES Comm 3
12	144.180		Simplex	RACES Comm 4
13	145.530		Simplex	RACES
14	145.635		Simplex	RACES
15	146.475		Simplex	RACES
16	147.405		Simplex	RACES
17	147.510		Simplex	RACES
18	146.520		Simplex	RACES

Channels 13 through 18 are frequencies authorized for National Emergency use under the President's War Emergency Powers provisions of Section 606, Communication Act of 1934, as amended. Refer to FCC Part 97, Subpart F, Section 97.185(b).

Packet BBSs

Freq	Call	Location
145.730	W8GEC	Boulder Creek
145.610	N6MPW-1	Castle Rock
145.790	N6MPW-7	Ben Lomond
145.090	N6IYA-1 (bbs)	Felton
145.610	N6IYA-2	Felton
145.070	KI6EH	Santa Cruz (De Laveaga Park)
144.970	N6LY	Monterey

Police

Agency	Ch	Freq	Use
Capitola PD	Blue	155.625	Dispatch
	Yellow	153.995	Tactical
CHP Santa Cruz County	Green	42.540	Dispatch
	Green	42.240	Car/Car

Agency	Ch	Freq	Use
	Blue	43.340	Dispatch
	Blue	42.180	Car/Car
CHP Santa Clara County	Brown	42.500	Dispatch
	Brown	42.820	Car/Car
CHP mobile extenders		154.905	Hand Held
CLEMAR	White	154.920	Mutual Aid
OES		153.755	State Aid
Co. Law Net	Red	154.950	Mutual Aid
Calcord (Calif Coordination)	Brown	156.075	Mutual Aid
Cabrillo College	Blue	156.090	Dispatch
Santa Cruz PD	Blue	154.770	Dispatch
	Yellow	155.880	Tactical
	Gold	155.220	Tactical
Sheriff Santa Cruz County	Blue	155.565	Dispatch
	Orange	156.030	Tactical

Agency	Ch	Freq	Use
Scotts Valley PD	Blue	155.085	Dispatch
	Yellow	154.940	Tactical
Watsonville PD	Blue	154.845	Dispatch
	Black	155.475	Tactical
Search and Rescue		45.960	Car/Car
Jeep Posse		47.460	Car/Car
		155.235	Disp/Car
Fish and Game		151.415	Dispatch

Fire

Agency	Ch	Freq	Use
State OES Fire Mutual Aid	OES	153.755	Multi-user
	OES 1	154.160	
	OES 2	154.220	
	White 1	154.280	
	White 2	154.265	
	White 3	154.295	

Agency	Ch	Freq	Use
Santa Cruz County Fire	Red	154.325	Dispatch
	Blue	154.415	Tactical
	Yellow	154.190	Tactical
	Black	154.055	Tactical
CDF State-wide	CDF1	151.355	
	CDF2	151.265	
CDF SCruz-SMateo	Local Net	151.370	Command
	Tac 3	151.175	Tactical
	Tac 6	151.325	Tactical
CDF (con't)	Tac 10	151.400	Tactical
	White 2	154.265	
	White 3	154.295	
CDF SBenito-Mont	Local Net	151.250	Command
	CDF Tac4	151.190	Tactical
	CDF Tac7	151.340	Tactical
	White 2	154.265	
	White 3	154.295	
CDF Santa Clara	Local Net	151.445	Command
	CDF Tac2	151.160	Tactical

Agency	Ch	Freq	Use
	CDF Tac9	151.385	Tactical
	White 2	154.265	
	White 3	154.295	
CDF Air	Green Air	151.295	Tac 5
	Red Air	151.220	Air-Grnd
	Victor	122.925	Air-Air
Los Padres	USFS	168.625	Air Guard
Los Padres	USFS	170.000	Air-Grnd
	Blue Air	151.280	Tac 4
	Yel Air	151.310	Tac 6
CDF Ben Lomond	Tac1	153.755	CYA Tactical

Marine & USCG

There are 88 VHF channels assigned for maritime use. Of these only a few are used for emergencies at sea and therefore are, of interest to ARES.

Ch	Freq	Use
6	156.300	Intership safety and USCG SAR
16	156.800	Distress, safety, and calling. USCG usually tells caller to "switch & answer" on Ch 22A
21A	157.050	USCG use only
22A	157.100	USCG Liaison. Can use to call USCG direct. USCG uses to carry out comms with vessels in distress and for other rescue ops.
23A	157.150	USCG use only. USCG vessel-to-vessel and vessel-to-air comms.
68	156.425	Non-com'rcial: vessel/vessel & vessel/coast .
69	156.475	same as Ch 68
72	156.625	same as Ch 68
78A	156.925	same as Ch 68
79A	156.975	same as Ch 68
83	157.175	USGC Auxiliary
- -	143.280	USGC Auxiliary
- -	143.875	USGC Auxiliary
- -	148.3050	USGC Auxiliary
- -	148.8250	USGC Auxiliary

Medical

Agency	Ch	Freq	Use
Santa Cruz Med Net	Med 1	463.000	Paramedic
	Med 2	463.025	Paramedic
	Med 3	463.050	Paramedic
	Med 8	463.175	Paramedic
	Med 9	462.950	Dispatch

Red Cross

47.42 Mhz (voice)
142.375 MHz (packet)

Utility/Miscellaneous

Agency	Ch	Freq	Use
Calcord		156.075	Interagency comm
Aircraft Emergency		121.500	Call & ELT
Civil Air Patrol		148.150	
		148.125	
		143.900	
		143.950	
		122.900	
		123.100	
Itinerant	Red	151.6250	
	Purple	151.9550	
	Blue	154.5700	
	Green	154.6000	

Agency	Ch	Freq	Use
Nat'l Weather Service	WX1 WX2	162.550 162.400	KIH30 Pt. Arena KEC49 Monterey
1st Alarm Security		460.975+ / 82.5 Hz 461.000+ / 179.9 460.9125 460.9126 / 77.0 460.9250 / 77.0	Private security

CTCSS (PL) Tone Frequencies

Tone	ID	Tone	ID	Tone	ID	Tone	ID
67.0	XZ	97.4	ZB	141.3	4A	203.5	M1
69.3	WZ	100.0	1Z	146.2	4B	206.5	8Z
71.9	XA	103.5	1A	151.4	5Z	210.7	M2
74.4	WA	107.2	1B	156.5	5A	218.1	M3
79.7	XB	110.9	2Z	162.2	5B	225.7	M4
82.5	WB	114.8	2A	167.9	6Z	229.1	9Z
85.4	YZ	118.8	2B	173.8	6A	233.6	M5
88.5	YA	127.3	3A	179.9	6B	241.8	M6
91.5	ZZ	131.8	3B	186.2	7Z	250.3	M7
94.8	ZA	136.5	4Z	192.8	7A	254.1	0Z

Part 11 Useful Internet Addresses

Agency	Address
Amateur Radio - other sites	http://www.acs.ncsu.edu/script/ HamRadio/otherWebs.html
Amateur Radio WWW sites	http://www.cc.columbia.edu/ ~fuat/ cuarc/www-sites.html
Amateur Radio WWW Virtual Library	http://buarc,bradley.edu/wwwvl-ham.html
American Red Cross	http://www.crossnet.org/
ARES San Mateo	http://www.belmont.gov/orgs/scares
ARRL Home Page	htpp://www.arrl.org
ARRL Pacific Division Home Page	http://www.protal.com./~pdarrl
California State OES Home Page	http://www.oes.ca.gov:8001/
FEMA	http://www.fema.gov
Guide to Emergency Services Worldwide	http://www.catt.citri.edu.au /emergency/
USGS	http://www.usgs.gov
USGS - index of on line resources	http://xroads.wr.usgs.gov/url.html
Weather, Bay Area Page	http://www.wco.com/~paulg/ weather.html
Weather, Monterey NWS	http://www.nws.mbay.net/home.html

Part 12 Local ARES Operational Areas

As discussed in Part 2, local ECs are responsible for managing ARES incidents within their operational area. The Santa Cruz County ARES District has four separate ARES organizations:

- San Lorenzo Valley
- Santa Cruz
- Loma Prieta
- Watsonville

The boundaries of these operational areas are described below.

San Lorenzo Valley ARES

From the coast line through San Lorenzo Valley to the summit west of Hwy 17 Felton and north to Santa Cruz/San Mateo County line in vicinity of Skyline Blvd. Includes the city of Scotts Valley and environs south to the Santa Cruz City limits.

Santa Cruz ARES

North from the Santa Cruz City limits south to Borregas Creek (on the Aptos side of Cabrillo

College), and west from the coast line east to the towards Loma Prieta.

Loma Prieta ARES

Includes area bounded by Summit Road from the junction of Old Summit Rd. and Skyline Blvd. south east to Hwy 17 then south on Hwy 17 to Laurel Road. The included area perimeter then generally follows Skyland Ridge easterly to Highland Way at a point approximately ¼-mile NW of the junction of Highland Way, Eureka Canyon Rd. and Ormsby Cutoff. The perimeter then goes due north to Loma Prieta, then NW along the ridge and down to cross the dam at Lexington Reservoir, across Hwy 17 and back up through Lyndon Canyon to the junction of Old Summit Rd. and Skyline Blvd.

Watsonville ARES

Includes area bounded by Borregas Creek (on the Aptos side of Cabrillo College) on the north. On the west, Santa Cruz/Monterey County line on the east, Santa Cruz County line in the vicinity of the Santa Cruz Mountains ridge, and the coastline. Serves the communities of Aptos, Freedom, Corralitos, Watsonville, and, as required by mutual assistance, Pajaro.

Part 13 Personal Equipment Checklists

This section lists recommended equipment to carry with you when on an ARES assignment. Use these lists as guidelines. Regardless of the equipment you choose to carry, you must, above all, plan to be self-sufficient.

Always take with you whatever you will need for the duration of the assignment. This includes food, shelter, and other supplies. To arrive with nothing more than radio in hand is to become part of the problem rather than part of the solution!

Basic Equipment

- ☐ ARES Identification Card
- ☐ Copy of Amateur Radio Operator License
- ☐ ARES Standard Operating Procedures and Field Handbook

Radio Gear

- ☐ Rig with instructions and accessories, earphones
- ☐ Power supply, extra batteries, AC extension cord
- ☐ Antenna with mounting hardware, high-gain rubber duck, mag-mount, vertical

- ☐ Spare fuses
- ☐ Patch cords/adapters: BNC to PL259, RCA to PL259, "N" type to PL259
- ☐ SWR meter
- ☐ Extra coax cable

Writing Gear

- ☐ Pencils, Pen
- ☐ Note paper
- ☐ Clipboard
- ☐ Message forms
- ☐ Log book and local maps

Personal Gear (8-Hour Max Assignment)

All the Equipment listed above, plus:

- ☐ Food, liquid refreshments, comfort items, throat lozenges, aspirin.
- ☐ Personal medicines, prescriptions, extra prescription glasses/sun glasses
- ☐ Zip lock bags, flashlight
- ☐ Full tank of gas in vehicle

Personal Gear (8-72 Hour Assignment)

All the Equipment listed above, plus:

- ☐ Jacket, hat, spare clothes, foul weather gear
- ☐ Three-day supply of drinking water and food
- ☐ Mess kit and cleaning supplies
- ☐ Cooking stove (e.g., backpacking stove), as required
- ☐ Sunblock
- ☐ First aid kit (sunburn ointment)
- ☐ Sleeping bag or equivalent
- ☐ Sleeping pad
- ☐ Toilet articles
- ☐ Mechanical alarm clock
- ☐ Flashlight with batteries, lantern, candles, waterproof strike-anywhere matches (or "Bic" lighter)

Tools and Hardware

- ☐ Screwdrivers (common and Phillips)
- ☐ Slip-joint pliers
- ☐ Adjustable wrenches
- ☐ RF connector adapters
- ☐ Electrical tape and duct tape
- ☐ Pocket knife
- ☐ Alligator type clip leads
- ☐ Volt-Ohm meter

- ☐ Roll of heavy-weight rope & roll of parachute cord (antenna installation)
- ☐ 12/120 V soldering iron, solder and hookup wire (optional)

Misc

- ☐ Siphon (for gasoline)
- ☐ Jumper cables
- ☐ ⅛-inch rope
- ☐ Highway flares
- ☐ Extra gas & oil (in approved containers)

Part 14 Clear Text Lexicon

The lexicon in this section is a subset of the lexicon in use by the CDF for their Clear Text policy.

Word / Phrase	Use for or to …
Unreadable	Signal reporting: received signal is not clear. In most cases, try to add the specific trouble. E.G., "unreadable, background noise."
Loud and clear	Signal reporting. Good signal strength (including full quieting), good, readable audio.
Stop transmitting	Self explanatory.
Copy, copies	Acknowledging message received and understood.
Affirmative	Yes
Negative	No
Enroute	Proceeding to or responding to assignment.
Uncovered	An ARES position lacking a radio operator.

Word / Phrase	Use for or to …
Out-of-service	An ARES operator at an assigned position cannot communicate due to equipment problems.
In-service	An ARES operator can handle traffic at his/her assigned position.
Repeat	Say your last message again.
Return to _____	Used by Net Control to direct operators back to the location specified.
What is your location?	Self-explanatory.
Disregard last message.	Self-explanatory.
Stand-by	Cease further transmissions and wait for queries, instructions, and so forth. From Net Control or station with whom you were communicating.
Is _____ available for a phone call?	Self-explanatory.
Available	Self-explanatory.

Word / Phrase	Use for or to …
Can handle	To indicate that the equipment at hand is sufficient to handle to job.
Report on conditions	Self-explanatory.
Available at residence	To indicate that you are at home and available for an assignment.
Out-of-contact	To indicate an ARES operator is on assignment but out of radio contact.
Go ahead	Indicates another ARES operator may transmit. E.G., "Go ahead Felton Shelter."
How do you copy?	Signal report request.
Contact _____	Relay message to person indicated.
Emergency Traffic	Gain control of the radio frequency to report an emergency.
ETA	Estimate time of arrival. Can be either a query as "What is your ETA to ____?" or a statement as "My ETA to _____ is _____."

Word / Phrase	Use for or to …
Emergency Traffic Only	Used by Net Control or Net Supervisor to restrict all radio transmissions to an emergency in progress or a new incident.
Fire	Use to declare a fire emergency.
Let me talk to _____	Use to engage traffic with a non-Ham.
Resume normal traffic	Used by Net Control or Net Supervisor to re-open the net to routine traffic.

Part 15 Telephone Numbers

Numbers marked with an asterisk (*) are unverified as of publication date.

A

Aptos/La Selva Fire Dist. (Bus. only)	685-6690

B

Branciforte Fire Dist	423-8856
Burrell C.D.F. Station	353-1022

C

CalStar Air Ambulance	1-800-252-5050
Civil Air Patrol (CAP)	
State HQ: LtC Mark Williams	wp 714-754-2045
	hp 310-378-1191
	e-mail: markwill@earthlink.net
Chief of Staff: LtC John Mouzakis	wp 909-391-0305
	hp 909-980-0359
C.D.F. Felton Headquarters	335-3020
California Highway Patrol	
Santa Cruz Office (Daytime)	662-0511
Santa Cruz Office (Nighttime)	475-1528
Dispatch (non-emergency)	455-1826

Cal-Trans	
Hwy Information	1-800-427-7623
All other	436-0930
Central Fire District - Santa Cruz:	
Admin	475-6767
Station 1 (17th Ave)	475-6770
Station 2 (Thurber Lane)	475-8355
Station 3 (Soquel)	475-3142
Station 4 (Capitola)	475-2160
CHEMTREC	1-800-424-9300
CHP see California Highway Patrol	

D

Dominican Hospital	
General	462-7700
Emergency	462-7710

E

Santa Cruz Co. Emergency Operations Center	458-7195
Note: This number is confidential. Do not disclose to outside of ARES.	
EOC Ham Radio Room	458-7145

F

Federal Aviation Agency	291-7681
Fed Emergency Management Agency	1-800-525-0321

First Alarm Security (security and patrol)	685-1110
After hours	688-1111
Freedom Fire Dist. (Bus. only)	722-0125

H

Helicopters	
CHP	251-3707

K

KSCO AM Radio (Emer. Broadcast Syst.)	479-1080

M

Monterey County Sheriff Office	724-1911

N

NetCom Center (County 911 center)	
Business	471-1000
Dispatch (not for reporting incidents)	471-1180
Sheriff 911 Operator	471-1170
Santa Cruz Police	471-1131
Capitola Police	471-1141
Watsonville Police Communications	471-1151
also	728-6110

O

Office of Emergency Services (Santa Cruz Co)	454-2282

P

P G. & E	
(Emergency)	1-800-743-5000
Dispatch	479-3044
Poison Control	1-800-662-9886
Police (business)	
Capitola	475-4242
Santa Cruz	429-3700
Scotts Valley	438-2324
Sheriff	471-1121
Capitola Police	471-1141
Watsonville	728-6001

R

RACES Radio Room at NetCom	458-7145
Note: This number is confidential. Do not disclose to outside of ARES.	
Red Cross	
Santa Cruz	462-2881
Watsonville	722-3801

S

Salvation Army	
Santa Cruz	426-8365
Watsonville	724-3922
Santa Cruz City Public Works Dept.	429-3633

Santa Cruz County:	
Consolidated Communications (NetCom)	471-1000
Environmental Health	454-2022
Public Works Emer Road Maint	477-3999
Radio Repair	454-2025
Santa Cruz Harbormaster	475-6161
Weather Information	475-3033
Santa Cruz Medical Clinic	423-4111
Scotts Valley Public Works Dept	438-5854
S.P.C.A.	475-6454
Suicide Prevention	458-5300

T

Toxic Information Center	1-800-233-3360

U

U.S. Coast Guard, Group Monterey	
Communications Center	647-7304
Emergency	647-7300
Operations Center	647-7302

W

Watsonville	
Airport	728-6075
City Public Works Dept	724-6049

Fire Department (Station 1)	728-6060
Fire Department (Station 2	728-6066
Police see Police (business)	
Weather (NWS)	475-3033

Z

Zayante Fire Dist. (Bus. only)	335-5100

Part 16 Shift Supervisor Responsibilities

The following are the responsibility of the Shift Supervisor, but may be delegated. The Shift Supervisor should *not* be a Net Control Station nor have any other incident-related position that could interfere with her/his duties.

- ☐ Ask Net Control Stations what they need.
- ☐ Ensure that a log is started. Pass all shift logs to the following shifts.
- ☐ Ensure all messages are logged and that formal message traffic is taken on appropriate message forms.
- ☐ Ensure that all equipment is maintained and operational.
- ☐ Set up liaison with other organizations.
- ☐ Review Resource Net scheduling. Ensure that everyone checks into Resource 20 minutes before their shift. This check-in allows for any last-minute changes in assignment *before* volunteers travel long distances with the possibly of the wrong equipment, incorrect assignment, or canceled assignment. Any Amateurs who are working with the deceased should be relieved every two hours.

- ☐ Work with the Incident Commander (IC) or whoever is in charge to allocate resources where they are needed. Ensure that Resource maintains a few Amateurs in reserve just to ensure you have the extra resources available should the IC request them.
- ☐ Ensure all Amateurs are fed.
- ☐ Ensure all Amateurs are informed of both local events and the overall scenario. Being kept in the dark is demoralizing. Also, the information helps make better Net Control Operators and Shift Supervisors in the future. Disseminate media information only after it has been verified locally. Do not mention specific names of people affected by the disaster.
    - Get bulletins from the EOC and repeat the latest bulletin every half hour when there is no other traffic. Precede Resource Net bulletins of system-wide interest with a 10-second DTMF ("touch-tone") tone so that receivers checking your frequency with their priority channel will lock on.
    - Conduct a briefing on the Resource Net and continue updates on a scheduled basis.

- Publish a periodic briefing on packet. Include the nature of the incident, resources utilized and any assistance that may be needed.

☐ The nets will be bombarded by incoming Health and Welfare (H&W) traffic. People from outside the area will insist that they have vital traffic for friends and relatives who in turn cannot be located for 3 days. Do the best you can to keep H&W traffic out of the Net until higher priority traffic has been passed. If necessary set up a H&W Net of HF. WESTCARS and Western Public Service are valuable for this purpose. Never accept traffic unless you are absolutely sure that you can forward it to the addressee.

☐ Enlist the help of transmitter hunters to determine sources of interfering signals.

☐ Ensure that Amateurs do not make decisions more properly made by government and disaster service agencies. We are communicators, not policy makers.

☐ Stay organized. Keep a list of nets, the purpose of each Net and the frequencies used.

Agencies may be reluctant to ask us to leave when activity winds down, so as not to hurt our feelings. Initiate suggestions to terminate service when it seems clear that we are no longer needed.

Part 17 ARESMAT Leader Checklists

If you are an ARESMAT leader, use the following checklists for team mobilization, deployment, and demobilization.

Pre-Deployment

- ☐ Notifiy team members of activation/assignment
- ☐ Issue credentials as required
- ☐ Brief team members
- ☐ Review host SECs request for assistance
- ☐ Arrange transportation for team
- ☐ Check accommodations at destination
- ☐ Review expected length of deployment

In-Transit

- ☐ Review situation status and situation reports
- ☐ Review job assignments, if available
- ☐ Profile affected area
- ☐ Review mission disaster relief plan
- ☐ Review maps
- ☐ Review technical documents as required
- ☐ Review contact lists
- ☐ Review tactical operations procedures

Arrival

- ☐ Check-in with host ARES officials
- ☐ Obtain ops information
    - ☐ Frequencies
    - ☐ Current actions
    - ☐ Available personnel
    - ☐ Communications & computer equipment
    - ☐ Support facilities
    - ☐ Host's ARES plan
- ☐ Set-up initial intra-team communication net
- ☐ Establish comm channel back to home section for morale traffic

Operations

- ☐ Perform initial assessment
- ☐ Monitor host ARES official's traffic
- ☐ Reduce duplication of effort
- ☐ De-brief personnel daily

Demobilization

- ☐ Determine extraction procedure
- ☐ Begin demobilization
- ☐ Begin team debrief

Phonetic Alphabet

Alpha	Hotel	Oscar	Victor
Bravo	India	Papa (pa-Pa')	Whiskey
Charlie	Juliet (Joo-lee-et)	Quebec (Key-Beck)	Xray
Delta	Kilo	Romeo	Yankee
Echo	Lima (LEE-ma)	Sierra	Zulu
Foxtrot	Mike	Tango	
Golf	November	Uniform (U-nee-form)	

24-Hour Time

1 AM	0100	7 AM	0700	1 PM	1300	7 PM	1900
2 AM	0200	8 AM	0800	2 PM	1400	8 PM	2000
3 AM	0300	9 AM	0900	3 PM	1500	9 PM	2100
4 AM	0400	10 AM	1000	4 PM	1600	10 PM	2200
5 AM	0500	11 AM	1100	5 PM	1700	11 PM	2300
6 AM	0600	12 noon	1200	6 PM	1800	12 mid	0000

To convert 12 hour time between noon and midnight, add 12 to the hour. For example, 2PM in 24-hour time is expressed as *1400 hours*.

Glossary

Brackets [] refer to the source of the term or the agency by whom a terms is used. These include:

- Ham
- ARES
- Comm (general communications)
- Telecom (telecommunications)
- Fed (federal government)
- ARRL (Amateur Radio Relay League)

AEC
Assistant Emergency Coordinator. Working under the Emergency Coordinator, AECs are responsible for specific areas of emergency communication preparedness and operations. [ARES]

ARC
American Red Cross

ARES
Amateur Radio Emergency Service. The emergency communications organization sponsored by the ARRL. Dedicated to providing public service communications on a voluntary basis, in times of disaster. [ARES]

ATV Amateur Television [Ham].
FCC rules permit television operation in specified frequency bands.

Autopatch
Equipment that allows an Amateur Radio station to communicate via the telephone system. by providing the necessary controls for both the telephone system and the radio equipment. Often used for reporting emergency situations to 9-1-1. [Ham]

Breaker
Anyone who interrupts a conversation between two other stations. Normally involves priority or emergency communication. [Ham]

Channel
The transmit and receive frequencies which are used together. [Comm]

Coverage
The area over which a radio station can conduct two-way communication. [Comm]

DEC
District Emergency Coordinator. Coordinates and supervises the emergency communications groups within an ARRL District (for example: Santa Cruz County). [ARES]

Distress Calls
Normally applies to requests for emergency assistance from ships or aircraft.

EC
Emergency Coordinator. Appointed to administer and coordinate local emergency communication preparedness and operations. [ARES]

FEMA
Federal Emergency Management Agency. [Fed]

Health and Welfare Traffic
Messages relating to the Health and Welfare of private citizens. [Ham]

MERC
Mountain Emergency Response Corps. A Red Cross organization in the Santa Cruz County Community. [ARC]

NCS
Net Control Station. Directs and coordinates all stations participating in any net operation, emergency or routine. [Ham]

NTS
National Traffic System. The ARRL sponsored network which is organized to handle Health and Welfare communications during emergency situations. Normally handles message movement over large distances. [ARRL]

OASIS
Operational Area Satellite Information System, one of five components of the California state primary response programs. OASIS is a portable communications satellite earth station.

OES
Office of Emergency Services. The organization at the state, county or local government level charged with responsibility for planning, preparation and disaster operations.

Point-to-Point Communications
Communications between fixed locations.

RACES
Radio Amateur Civil Emergency Service. An FCC established service, managed by state and local governments to provide disaster management or civil defense communications. RACES is intended to specifically augment the communications of the government (local or state). It has specific Amateur Radio channels allocated for its exclusive use. Its duties are limited to assisting government authorities and excludes non-government relief efforts. In Santa Cruz County ARES members are also de-facto enrolled in the RACES.

Resource Net
The network operations involving the coordination of personnel and equipment for an Amateur Radio Emergency Service activity. [ARES]

SEC
Section Emergency coordinator. Coordinates emergency activities within an ARRL Section. Works with local ARES groups through the DEC. [ARES]

Served Agency
Any governmental agency or relief organization with which local ARES groups have a working relationship.

SET
Simulated Emergency Test. A drill. [ARES]

SKYWARN
A system which becomes operational during specific emergency weather conditions such as hurricanes, tornadoes, floods, and blizzards. Provides weather information to the National Weather Service and disseminates NWS advisories to local authorities.

Tactical Net
A radio net organized for the purpose of handling the operational communications associated with an emergency situation.

Telephone Tree
A scheme of successive telephoning, designed for rapid notification of participants.

Third Party Traffic
Messages originated by a party not the originating station or sent to a party not the receiving station. [FCC]

Zed
European pronunciation for the letter "Z." Sometimes used by Hams to phonetically pronounce "Z" in place of the phonetic "Zulu."

Zulu
Phonetic pronunciation for the letter "Z."

In reference to time, the same as Universal Coordinated Time (UCT) or, previously, "Greenwich Mean Time" (GMT).

Emergency Coordinators

Group Section	Name	Phone
District	DEC Rich Hanset / KI6EH rhanset@novacontrols.com	438-0615(h)
District	ADEC Dan Qwan / N6WIB ADEC for the ARES Van	685-3510 (h) 800-225-0256 x100544 (p)
District	ADEC Bruce Wade / W6FKD W6FKD@KI6EH.#CENCA.USA.NOAM bwade@juno.com ADEC for EOC Ham Operations	423-0575
Watsonville	EC Bob Wiser / KD6FXQ KD6FXQ@KI6EH.#CENCA.USA.NOAM BobWiser@aol.com	728-4198 (h) 421-4091 (p)
	AEC Jim Piper / KD6YKL KD6YKL@KI6EH.#CCA.USA.NOAM kd6ykle@juno.com	662-2766 (h) 662-8877 (w)
Santa Cruz	EC Geoff Ellis / KD6MFM geoff@cadence.com	475-1262 (h) 685-6559 (w)
	AEC Steve Smarden / N6TGM	476-6421 (h) 650-813-2492 (w)
San Lorenzo Valley	EC Frank Wyatt / N6FW N6FW@N6IYA.#CENCA.CA.USA.NOAM fwyatt@cruzio.com	461-1525
	AEC Sherwin MacKenzie N6HAC	335-7450 (h)

Group	Name	Phone
Loma Prieta	EC Mike Kelley / N6ZOC N6ZOC@KI6EH.#CENCA.USA.NOAM mkelley@znet.com	353-2016
	AEC Trudy Maxwell / KC6NAX	353-2094
Salinas	EC Scott Thompson / KC6UMQ 76131.3621@compuserve.com	443-4710
Monterey	unknown	

My Important Phone Numbers

Name	Number

Op Area Notes

Use these pages to record important information and notes applicable to your ARES group operational area.

Index

N

T

W