

Emergency Communications in Eastern Massachusetts

Presented by Terry M. Stader- KA8SCP MEMA Region 1 Communications Coordinator/RACES Officer

What is EmComm?

EmComm or Emergency Communications is the act of establishing a means of communicating after an event that damages regular lines of communications due to power outages and destruction of telephone, cellular and other infrastructure-dependent systems.

Amateur Radio operators have informal and formal groups to coordinate communication during emergencies.

- At the local level, hams may participate in local emergency organizations or organize local "traffic nets".
- Hams are often involved with state/local emergency management operations through the Radio Amateur Civil Emergency Service (RACES), which is a Service authorized by the FCC,
- Also, Amateur Radio Emergency Service (ARES), which is coordinated through the American Radio Relay League and its field volunteers.

UN statement on amateur disaster communications

- One important network is sometimes overlooked by emergency management: more than 2,800,000 amateur stations world-wide
- In many cases provided first information about a disaster and served as the only link
- Amateurs have 2 distinct advantages:
 - independence of infrastructure
 - dedicated, skilled operators, able to improvise



The International Amateur Radio Union

Since 1925, the Federation of National Amateur Radio Societies Representing the Interests of Two-Way Amateur Radio Communication

- •Puerto Rico & Virgin Islands 2017
- Mexico City Earthquake 2017
- •HMS Bounty Rescue 2012
- •Slovenia Weather 2014
- Joplin Tornado 2011
- •Southeast Tornadoes 2011
- •Virginia Earthquake 2011
- •Hurricane Irene 2011
- •BWCAW Fire 2011
- •San Diego Blackout 2011
- •February tornado outbreak 2008
- •Oregon Storms 2007
- •Hurricanes Katrina and Rita --2005
- •Hurricanes Charlie, Frances, Ivan, and Jeanne in Florida -- 2004
- •Earthquake in Central California --December 2003
- •Northeast blackout -- August 2003
- •Shuttle Columbia recovery effort --February 2003

- World Trade Center and Pentagon terrorist attacks -- September 2001
- •Flooding in Texas and Louisiana (Storm Allison) -- June 2001
- Fires in Los Alamos, New Mexico -- May 2000
- •Hurricane Floyd -- September 1999
- •Tornadoes in Oklahoma and Kansas --May1999
- •Colombian Earthquake -- January 1999
- •Tornadoes in Arkansas and Tennessee --January 1999
- •Hurricane Mitch in Central America --November 1998
- •Flooding in Texas -- October 1998
- •Hurricane Georges -- September 1998
- Tornadoes in Florida -- February 1998
 "500-Year Flood," Grand Forks, N.D., and East Grand Forks, Minn. - April 1997
- •Western U.S. floods January 1997
- •Hurricane Fran September 1996
- •TWA plane crash July 1996
- •Oklahoma City Bombing April 1995

Who are the "players"?

- ARES Amateur Radio Emergency Services
- RACES Radio Amateur Civil Emergency Services
- ACS Auxiliary Communication Services
- SKYWARN affiliated with the NWS
- MARS Military Affiliated Radio Services (Army, Air Force, Navy)
- NGO's have programs too: SATERN, ARC

Our local clubs





The Amateur Radio Emergency Service (ARES) is:

•Licensed amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service.

•Every licensed amateur, regardless of membership in ARRL or any other local or national organization, is eligible for membership.

-only qualification, other than possession of an Amateur Radio license, is a sincere desire to serve.

-possession of emergency-powered equipment is desirable but is not a requirement for membership.





Four levels of ARES organization

- National
 - Advising all ARES officials.
 - Setting and carrying out the American Radio Relay League's policies.
- Section
 - The Section Manager is elected by the ARRL members in the section.
 - Section Manager appoints the Section Emergency Coordinator (SEC).
 - The Section Manager delegates to the SEC the section emergency plan.
 - The Section Emergency Coordinator has the authority to appoint Assistant SEC, District and local EC's.
- Local
 - The local Emergency Coordinator (EC) is the key contact.
 - Direct contact with the ARES volunteers and with officials of the agencies to be served.
 - The EC is appointed by the SEC, usually on the recommendation of the DEC.
- District
 - In large sections, SECs have the option of grouping their EC jurisdictions into "districts"
 - SEC appoints a District EC to coordinate the activities of the local ECs in the district.





Section Manager: John McCombie N1ILZ Section Emergency Coordinator: <u>Rob Macedo, KD1CY</u> Assistant Section Emergency Coordinators:

Michael Leger, N1YLQ Stu Solomon, W1SHS

District Emergency Coordinators

Geographical:

- •Bristol County Phil McNamara, N1XTB
- •Cape & Islands <u>Frank O'Laughlin, WQ10</u>
- •Cape & Islands ADEC –<u>Henry Brown, K1WCC</u>
- •Essex County Jim Palmer, KB1KQW
- •Middlesex ADEC <u>Alan H. Martin, W1AHM</u>
- •Middlesex ADEC <u>Tim Miranda, W1MWS</u>
- •Metro Boston DEC Mark Duff, KB1EKN
- •Metro Boston ADEC Ethan Hansen, KC1OIP
- •Norfolk County <u>Stu Solomon, W1SHS</u>
- •Plymouth County Phil McNamara, N1XTB

Functional:

- •(High Frequency Net) Marc Stern, WA1R
- •(Hospital Liaison) –<u>John O'Neill, K1JRO</u>
- •(IT/Database) Phil McNamara, N1XTB
- •(Special Operations) <u>Mark Duff, KB1EKN</u>
- •(RACES Region 1) <u>Terry Stader, KA8SCP</u>
- •(RACES Region 2) Michael Leger, N1YLQ
- •(Operations) <u>Steve Schwarm, W3EVE</u>



Clockwise: ARC APCO BSA Gitizen Corps CAP FCC FEMA NFCC FEMA NFCC NVOAD REACT SATERN SKYWARN SBE USPS





Memorandum of Understanding

An MOU provides a framework for cooperation and coordination with agencies to which we as radio amateurs provide communication services. <u>http://www.arrl.org/FandES/field/mou/</u>

- American Red Cross <u>http://www.redcross.org</u>
- National Weather Service <u>http://www.nws.noaa.gov</u>
- Department of Homeland Security -- Citizen Corps (FEMA) <u>http://www.dhs.gov</u>
- Association of Public-Safety Communications Officials-International (APCO)
- National Communications System (NCS) <u>http://www.ncs.gov</u>
- National Association of Radio and Telecommunications Engineers, Inc. (NARTE)
- Salvation Army http://www.satern.org/
- Society of Broadcast Engineers (SBE) <u>http://www.sbe.org</u>
- Quarter Century Wireless Association, Inc. (QCWA) <u>http://www.qcwa.org</u>
- Radio Emergency Associated Communication Teams (REACT) <u>http://www.reactintl.org</u>
- Civil Air Patrol (CAP) <u>http://www.gocivilairpatrol.com</u>
- United States Power Squadrons (USPS) <u>http://www.usps.org/national/Ham/</u>

Some local ARES programs have MOUs with regional MRC and CERT



At the local level, an MOU serves two purposes.

- First, it's a door opener. An ARES group is more likely to be heard and taken seriously by a local NWS office when accompanied by the agreement document signed by the head of the agency. The served agency says, in effect, we have examined this organization of radio amateurs and have found them to be trustworthy and able to render substantial and needed services for our field operations in times of emergency. The agency head is telling its field offices, "Go get 'em--they are good for us."
- Secondly, once your foot is in the door, the provisions of the MOU document spell out the capabilities and organization of the servers (us), the organization and needs of the served agency (them), and the methods of operation.





ARES

Local ARES Organizations (or supply hams)

- Cape Cod & Islands District ARES
- Northern Middlesex ARES
- North Shore ARES (NRSA)
- Concord Amateur Radio Emergency Team
- Cape Ann Amateur Radio Association
- PART of Westford
- Nashoba Valley Amateur Radio Club
- Boston Amateur Radio Club
- MITRE Bedford ARC
- Framingham Amateur Radio Association
- Pentucket Radio Association
- Montachusett Amateur Radio Association
- Algonquin Amateur Radio Club

NOTE: List is only ARRL affiliated clubs





ARES Mutual Assistance Team (ARESMAT)

- ARES members in an affected area may not be able to respond to ARES operation because of their own personal situations.
- Communications support must come from ARES volunteers outside the affected areas.





December 2008 Ice storm

- Total Hours North Shore ARES was activated: 250.5 Hours (10 Days, 10.5 Hours)
- Total Hours North Shore ARES was FORMALLY Activated: 78 Hours (3 Days, 6 Hours)
- Total Hours North Shore ARES was INFORMALLY Activated: 172.5 Hours (7 Days, 4.5 Hours)
- Total Approximate # of Administration Hours: 30
- 8 Conference Calls were conducted amounting to approximately 218 minutes.
- An average of 27.25 minutes was spent on each conference call
- Total # of people deployed to Gardner: 22
- Total Ground-Hours in Gardner: 253.25
- Number of Gardner ARES-MAT Shifts: 5
- Average Operators per Shift: 4.4
- Average Ground-Hours in Gardner Per Person: 11.51
- Total # of people deployed to SEOC: 3
- Total Ground-Hours in SEOC: 35
- Average Ground Hours in SEOC Per Person: 11.67
- Average deployment hours per person for (all operations): 11.53
- Total Ground Hours at NWS Taunton: 56 Hours (3 Hams)

Eastern Mass ARES Plans for the Remainder of 2025

- Eastern Massachusetts ARES plans for the remainder of 2025:
 - Execute a section wide Winlink Digital Only exercise for Saturday 5/10/25
 - Execute one to two more full voice/digital section wide exercises 1 in August and 1 potentially in the Fall (November timeframe)
 - Eastern Massachusetts ARES leadership now sending in activity reports to ARRL HQ on a monthly basis with their new online ARES reporting system – will begin posting these updates on either a bimonthly or quarterly basis on the Eastern Mass ARRL web site
 - Will be teaching a SKYWARN class for the 2025 Northeast HamXposition and if MEMA holds their 2025 CERT Seminar
 - Will look at potentially providing additional training workshop opportunities over Zoom if not during the second half of 2025, in the first part of 2026

Eastern Mass ARES Plans Completed Since 2023

- Eastern Massachusetts ARES has completed the following over the last 2 years since 2023:
 - Completed an update to the Eastern Massachusetts ARES Section Plan and that plan can be seen at the following link: <u>https://ema.arrl.org/wp-content/uploads/2023/11/Eastern-</u> <u>Massachusetts-ARRL-ARES-Section-Communications-Plan-Released-Version-1.1.pdf</u>
 - Monthly Eastern Massachusetts ARES continues to be held on the first Monday of each month (second Monday if it's a legal holiday) on the MMRA Linked repeater network – net has been active with 10-20+ check-ins per month
 - MMRA system continued to be used in various section exercises into all the section exercises
 - Taught live SKYWARN Classes for the Northeast HamXpo 2023 & 2024 and for the MEMA Cert Seminars in September 2023 and 2024
 - Continued robust support of the National Weather Service Boston/Norton via SKYWARN self-activation protocols and remote operation for numerous SKYWARN Activations from 2023-2025 and included in-office activations for 2 severe weather events in 2023 (SKYWARN Activations largely now handled remotely from the NWS office)
 - Executed the following section exercises from mid-2023 to 2025:
 - Section Exercise Operation "Regional Prep" 11/8/23
 - Section Exercise Operation "Snow Globe" 1/31/24
 - Section Exercise Operation "Big Blow" 7/31/24
 - Section Exercise Operation "November Gale" 11/3/24
 - Section Exercise Operation "Clear Ice" 1/31/25
 - Completed a small number of Eastern Massachusetts ARES Organizational changes (see next slide)

For More Information

- For more information on Eastern Massachusetts ARES and the NWS Boston/Norton SKYWARN, check out the following links:
 - Join EMA ARES New Application link: <u>https://secure.ema.arrl.org/qilan/ares/EMA/ARES_membership_app_new</u>
 - ARES membership login/new application link: <u>https://secure.ema.arrl.org/qilan/ares/EMA/ARES_member_login</u>
 - Eastern Massachusetts ARES: <u>https://ema.arrl.org/ares</u>
 - Eastern Massachusetts ARES Facebook & Twitter Pages: <u>https://www.facebook.com/EMaARES</u> and <u>https://twitter.com/ares_ema</u>
 - ARES Plan info ARRL web Story: <u>http://www.arrl.org/news/new-plan-aligns-ares-with-the-needs-of-served-agencies</u>
 - ARRLARES Strategic Plan complete document: http://www.arrl.org/ares-plan
 - WX1BOX Home Page: https://www.wx1box.org
 - WX1BOX Facebook Page: <u>https://www.facebook.com/wx1box</u>
 - WX1BOX Twitter Feed: https://www.twitter.com/wx1box
 - WX1BOX YouTube Channel: <u>https://www.youtube.com/@nwsboston-norton-amateur-radio</u>



RACES, administered by local, county and state emergency management agencies, and supported by the Federal Emergency Management Agency (FEMA) of the United States government, is a part of the Amateur Radio Service that provides radio communications for civilpreparedness purposes only, during periods of local, regional or national civil emergencies. These emergencies are not limited to war-related activities, but can include natural disasters such as fires, floods and earthquakes.



As defined in the rules, RACES is a radiocommunication service, conducted by volunteer licensed amateurs, designed to provide emergency communications to local or state civilpreparedness agencies. It is important to note that RACES operation is authorized by emergency management officials only, and this operation is strictly limited to official civil-preparedness activity in the event of an emergencycommunications situation.







- The Massachusetts Comprehensive Emergency Management Plan (MCEMP) is the guidance document for emergency response in the Commonwealth of Massachusetts.
- The plan establishes the fundamental policies, basic program strategies, assumptions and mechanisms through which the Commonwealth will mobilize resources and conduct activities to guide and support local emergency management efforts through response and recovery.

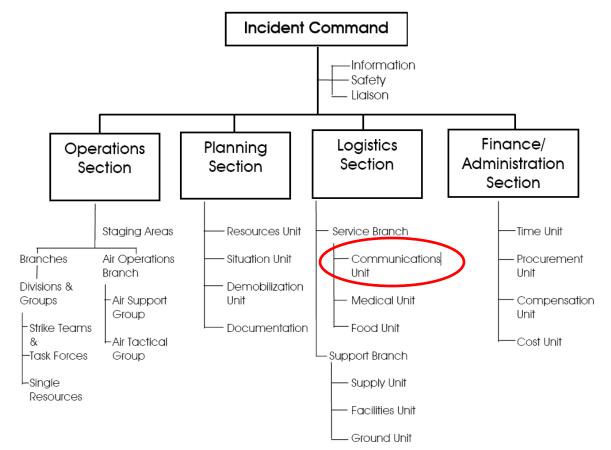
http://www.mass.gov/Eeops/docs/mema/state_cemp-full_plan.pdf







RACES support is described in the MCEMP under MAESF2. RACES (and ARES and Skywarn support to RACES), report to the Massachusetts Emergency Management Agency (MEMA), as the primary agency responsible for the administration of MAESF2. They, in turn report to the Logistic Section Chief for ICS purposes.



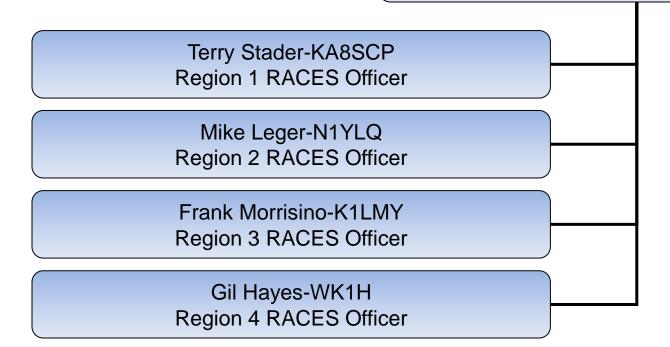




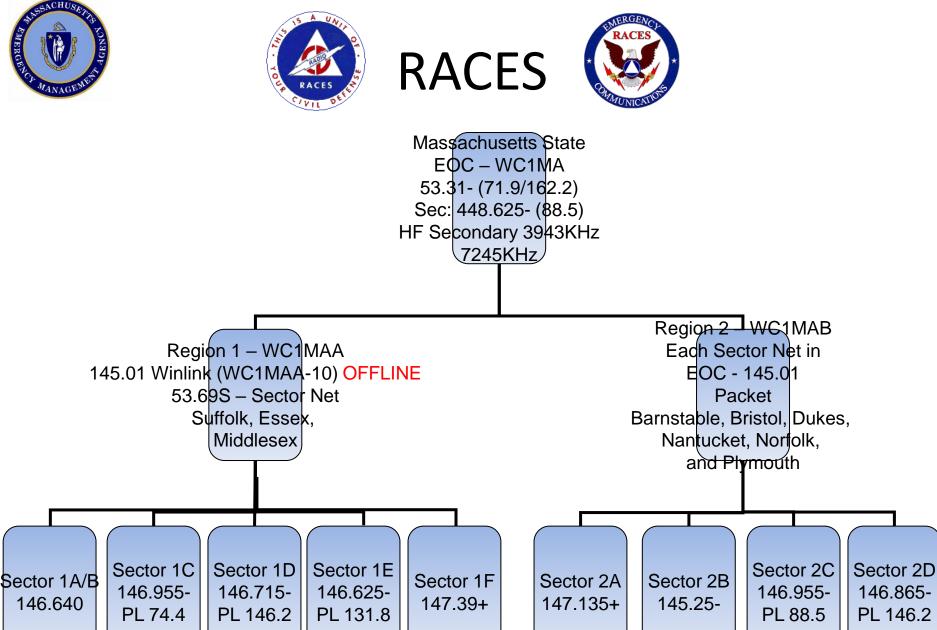


Andrew Bagdonas Communications and IT Manager (MEMA)

Massachusetts ACS Coordinator (formerly State RACES Officer)















		MEMA Region 1 Sector Nets		
146.640 (136.5) /146.79(146.2)	146.955(74.4)	147.120146.2)	146.625(PL 156.7) /145.490(131.8)	147.39
Sector 1B	Sector 1C	Sector 1D	Sector 1E	Sector 1F
Arlington	Acton	Bedford	Amesbury	Beverly
Ashland	Ashby	Billerica	Andover	Chelsea
Belmont	Ayer	Burlington	Boxford	Danvers
Brookline	Boxborough	Everett	Georgetown	Essex
Cambridge	Carlisle	Lexington	Groveland	Gloucester
Framingham	Chelmsford	Lincoln	Haverhill	Hamilton
Holliston	Concord	Lynnfield	Ipswich	Lynn
Hopkington	Dracut	Malden	Lawrence	Manchester
Marlborough	Dunstable	Medford	Merrimac	Marblehead
Natick	Groton	Melrose	Methuen	Middleton
Newton	Hudson	N Reading	N Andover	Nahant
Sherborn	Littleton	Reading	Newbury	Peabody
Sudbury	Lowell	Somerville	Newburyport	Revere
Waltham	Maynard	Stoneham	Rowley	Rockport
Watertown	Pepperell	Tewksbury	Salisbury	Salem
Wayland	Shirley	Wakefield	Topsfield	Saugus
Weston	Stow	Wilmington	W Newbury	Swampscott
	Townsend	Winchester		Wenham
	Tyngsboro	Woburn		Winthrop
	Westford			

MEMA Relationship and State EOC Monthly Testing Continues

- The MEMA relationship and State EOC Monthly Amateur Radio testing continues
- State EOC Amateur Radio monthly testing was paused in January to February 2025 due to Comms Dispatch renovations
- Mid-February 2025 Mike Girard supported restoration of the Amateur Radio station setup and testing resumed in March 2025
- Continuing to work with MEMA on Amateur Radio-local & state Emergency Management partnership
 - Situational Awareness information during severe winter of all hazards
 - Situational Awareness information during non-severe weather events criteria and process for reporting will be defined
- State EOC Amateur Radio setup is functional on VHF/UHF
- HF remains down due to an antenna issue
- MEMA will be providing new antennas and possibly radios for the Amateur Radio station as part of a new tower project at the State EOC – timeframe on this is TBD
 - Amateur Radio team have provided input on equipment needs





The Massachusetts Radiological Emergency Response Plan (MARERP) for Licensed Nuclear Power Plants is an annex to the Massachusetts Comprehensive Emergency Management Plan, which incorporates the National Incident Management System (NIMS) concept of operations and standardization of terminology for consistency in preparedness, response, and recovery activities.

The MARERP includes information such as the breakdown of responsibilities in public and private sectors, a discussion of emergency planning zones, protective action guides and protective actions, concept of operation, and notification and warning. The responsibilities of primary and support agencies (State, local, and Federal) are also identified.



Auxiliary Radio Service (ACS)

A network of volunteer radio operators using privately owned amateur radio equipment to provide additional back-up communications capability at the community, MEMA Regional and State level of response.



Auxiliary Radio Service (ACS)

MEMA Region 1 Tewksbury

Staffing: Communications Coordinator, Communications Officer and Radio Operator (5)

EPZ Communities – 10 mile radius

Amesbury, Merrimac, Salisbury, West Newbury, Newbury & Newburyport - Radio Operator



Auxiliary Radio Service (ACS)

Radio Operators

Amateur Radio operators trained for:

- ham radio
- public safety
- pbx/switchboard
- fax

All positions train for all equipment



VHF high band system

٠	REG 1 TEWKSBURY	155.4375	D532
•	REG 1 BOSTON	153.9650	203.5
•	REG 1 AMESBURY	151.2575	411
•	REG 1 FRAMINGHAM	155.7450	100.0
•	REG 2 PLYMOUTH	154.0850	210.7
•	REG 2 PILGRIM	151.3925	210.7
•	REG 3 ADAMS	155.0850	225.7
•	REG 3 AMHERST	153.9050	532
•	REG 4 WESTBORO	151.4525	229.1



Amateur Radio operators perform a unique service for the National Weather Service. With their mobile radio transmitters, technical knowledge, and NWS certified SKYWARN training, Amateur Radio SKYWARN weather observers activate SKYWARN or Severe Emergency Weather Nets, which in conjunction with the general public, provide the National Weather Service with validation of all severe weather reports throughout the coverage area.





Whenever a Severe Thunderstorm, Tornado, Hurricane or Flood Watch is issued, a Winter Storm, Blizzard, or High Wind Warning is issued, or in the lead forecaster's opinion there is a strong potential for severe weather, the Southern New England ARES SKYWARN/Spotter Network for Taunton's Warning Area of Responsibility should be activated. This network is activated by a phone call from the lead forecaster at NWS to the ARES SKYWARN Coordinator.





ARES Skywarn Coordinator:

Rob Macedo – KD1CY

Email: <u>kd1cy.rob@gmail.com</u>

Assistant North Shore Skywarn Coordinator:

Jim Palmer – KB1KQW

Email: <u>kb1kqw@nsradio.org</u>



146.910/146.310: MT Greylock Western MA, Berkshire County PL: 162.2 Hz 146.940/146.340: MT Tom Western MA (Conn. River Valley, MA.)PL: 127.3 Hz 146.670/146.070: Agawam Western MA (Conn. River Valley, MA.) IRLP liaison PL: 127.3 Hz 146.985/146.385: Greenfield Franklin County MA PL: 136.5 Hz 146.925/146.325: Worcester Worcester County PL: 100.0 Hz Co-Primary # 146.970/146.370: Paxton Worcester County PL: 114.8 Hz Co-Primary # 147.390/147.990: Athol Northern Worcester County MA PL: 100 Hz #### 145.370/144.770: Templeton Northern Worcester County MA PL: 136.5 Hz #### 146.955/146.355: Westford Essex, Middlesex Counties PL: 74.4 Hz 145.470/144.870: Danvers Essex, Middlesex Counties PL: 136.5 Hz 146.640/146.040: Waltham Essex, Middlesex and Norfolk Counties (Co-Primary) No PL # 145.230/144.630: Boston Essex, Middlesex and Norfolk Counties (Co-Primary) PL 88.5 Hz # 146.625/146.025: West Newbury Northern Middlesex/Essex County MA PL: 131.8 Hz 146.895/146.295: Walpole Norfolk County Ma. PL: 123.0 Hz 147.195/147.795: Attleboro Northern Bristol County Ma. PL: 127.3 Hz 147.180/147.780: Bridgewater South Shore, Ma. PL: 67.0 Hz 147.225/147.825: Whitman Alternate for 147.180 PL: 67.0 Hz 145.490/144.890: Fairhaven South Coastal MA and RI PL: 67.0 Hz (Also has IRLP liaison link) 146.685/146.085: Plymouth South Coastal Plymouth County PL: 82.5 Hz 146.955/146.355: Dennis Cape Cod and the Isles Primary PL: 88.5 Hz 146.655/146.055: Falmouth Cape Cod and the Isles Optional PL: 88.5 Hz 147.375/147.975: Falmouth Cape Cod and the Islands Optional PL: 110.9 Hz



The Military Auxiliary Radio System(MARS) is a United States Department of Defense sponsored program, established as a separately managed and operated program by the United States Army, and the United States Air Force. The United States Navy-Marine program has been closed.

The program is a civilian auxiliary consisting primarily of licensed amateur radio operators who are interested in assisting the military with communications on a local, national, and international basis as an adjunct to normal communications. The MARS programs also include active duty, reserve, and National Guard units; Navy, Marine Corps, and National Oceanic and Atmospheric Administration ships, and Coast Guard cutters and shore stations.





Customers

- Department of Defense
 - Department of the Army
 - Department of the Air Force
 - Department of the Navy
 - United States Marine Corps
 - United States Navy
 - Joint Director of Military Support (JDOMS)
- Department of Homeland Security
 - United States Coast Guard
 - Transportation Security Administration (TSA)
 - Federal Emergency Management Agency (FEMA)
 - National Communications System (NCS)
 - National Disaster Medical System (NDMS)
- Department of State









The **Community Emergency Response Team (CERT) Program** educates people about disaster preparedness and trains them in basic disaster response skills, such as fire safety, light search and rescue, and disaster medical operations. Using their training, CERT members can assist others in their neighborhood or workplace following an event and can take a more active role in preparing their community. The program is administered by DHS.



CERT



Some local CERT programs

- Dracut
- Lowell
- Billerica
- Boston
- Andover
- Malden
- Newburyport
- Peabody
- Wilmington
- Lawrence
- Methuen
- Arlington
- Reading
- Melrose
- Belmont

- Beverly
- Rowley & Ipswich
- Haverhill
- Acton
- Sudbury
- Needham
- Brookline
- Massachusetts Emergency Response Team
- Gardner
- Leominster
- Lincoln
- Marlborough
- Woburn
- Somerville



The Medical Reserve Corps (MRC) Program strengthens communities by helping medical, public health and other volunteers offer their expertise throughout the year as well as during local emergencies and other times of community need. MRC volunteers work in coordination with existing local emergency response programs and also supplement existing community public health initiatives, such as outreach and prevention, immunization programs, blood drives, case management, care planning, and other efforts. The MRC program is administered by Department of Health and Human Services (HHS).



The Local Club



The Local Club



Clubs like WARA:

- Field Day participation, resourceful at constructing antennas, makeshift operations, emergency power, etc.
- NCS are a valuable resources to be the net control stations
- Clubs have community repeaters, a collection point for regional information.
- So when the call goes out:
 - Are you and your family safe?
 - Do you have what is needed/requested?
 - Only speak out if you have a contribution, do not rag chew in a time of emergency





Resources:

EMA Section website: <u>http://ema.arrl.org</u> EMA ARES website: <u>http://ares.ema.arrl.org</u> Massachusetts RACES: <u>http://ema.arrl.org/races/</u> Skywarn: <u>http://www.wx1box.org/</u>

Massachusetts Emergency Management Agency: <u>http://mass.gov/mema</u>

Army MARS: <u>http://usamars.us/</u> Air Force MARS: <u>https://www.mars.af.mil/</u>

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