Cape Cod & Islands ARES District
Exercise #75
Scenario and Guidelines

Cape Cod ARES

Operation "Whirlwind"

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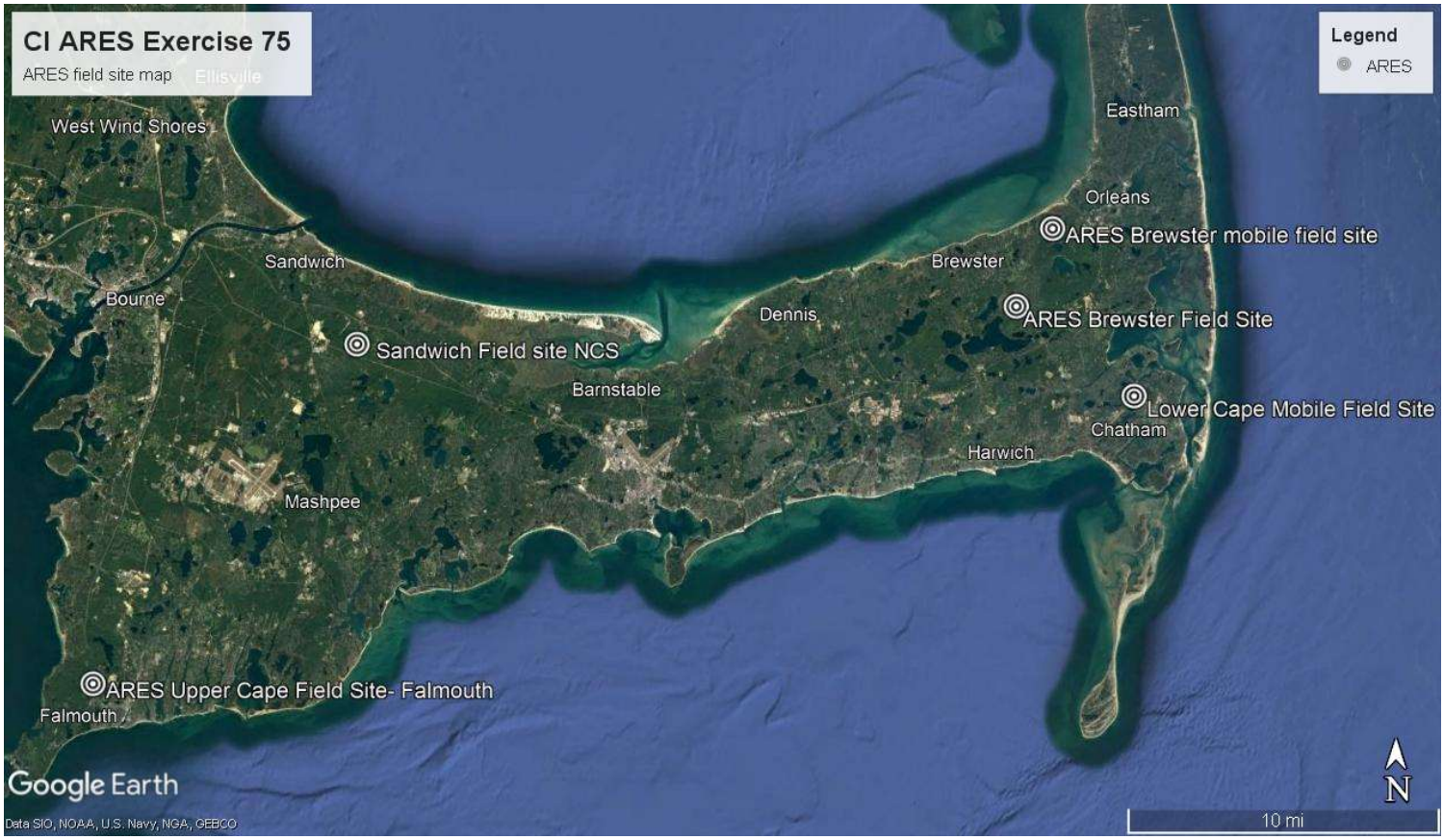
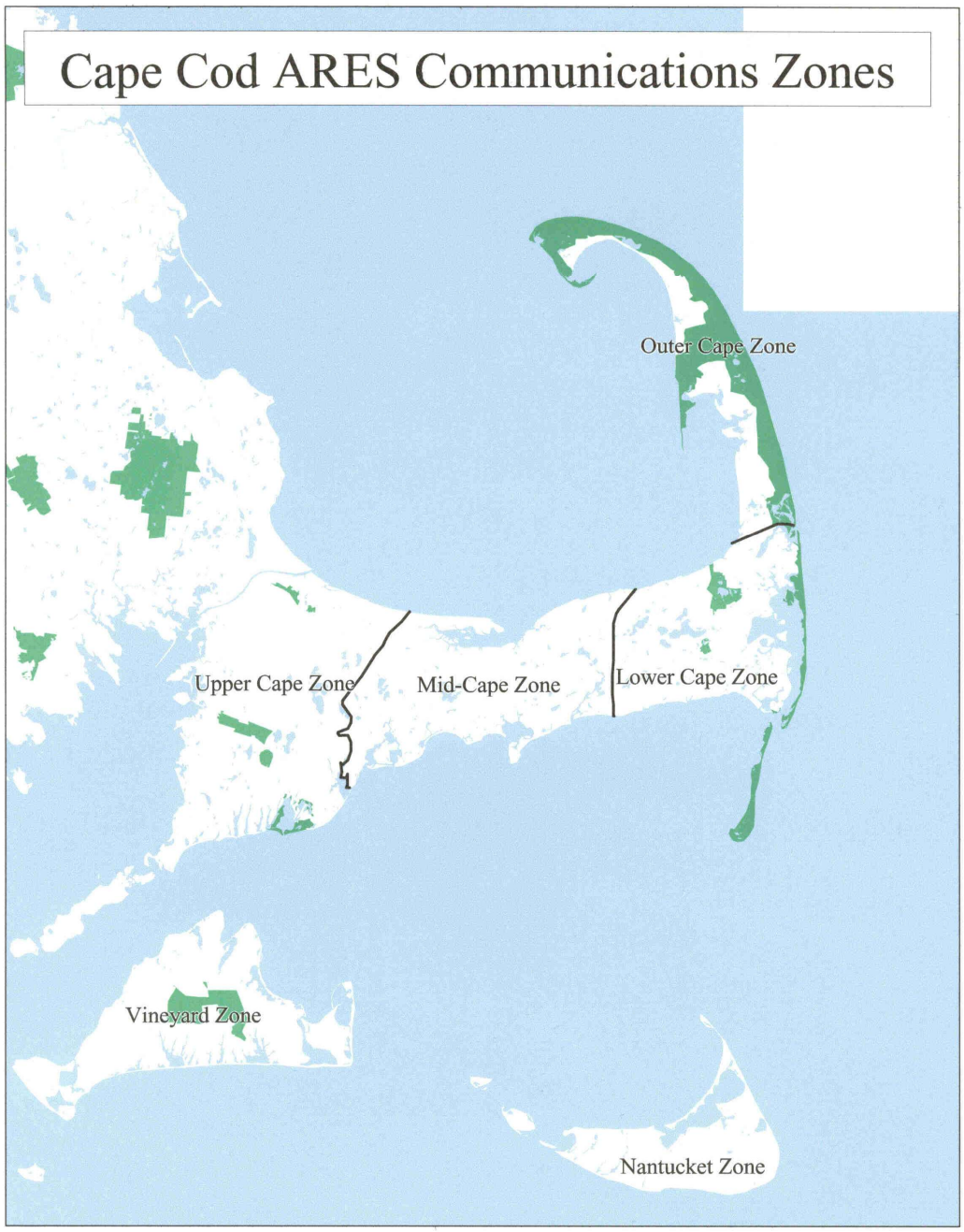


Cape Cod ARES Zone Map



Date of Exercise

Saturday August 6th, 2022
Setup time: 8:30am
Start Time: 10:00am
End Time: 12:00pm
Operational Duration: 2 hours

Purpose

The Cape Cod and Islands District Amateur Radio Emergency Service will conduct a summer field operations exercise to test its capability in establishing communications with stations within its district and outside it under emergency conditions. The operational exercise called Operation **"Whirlwind"** will test the ability of several field stations to communicate. This will also be a drill to test some of our primary stations and other ARES member home stations. The exercise will attempt to build upon the lessons learned from our past operational exercises.

Exercise Scenario

On Wednesday July 27th, Category one hurricane Darby impacted SE MA with 80mph winds causing significant tree damage and power outages over much of SE MA and significant rainfall in central and western sections of the state. On Monday August 6th the larger hurricane in a series of storms named Ernie followed Darby's path into SE MA as a category three hurricane with winds of 120mph. Gusts as high as 150mph were recorded at Blue Hill with gusts near 135mph reported over Cape Cod and the Islands. A storm surge of near 17 ft. was observed at the top of Buzzards Bay with surge values of near 13ft observed over parts of the South coast including the Cape/Islands.

Winds of near 105mph impacted areas of the south shore with winds of 80-90mph reported in Boston and Metro-West. West and north of the storm track produced severe flooding in central and western MA with 10-12" of rainfall. In areas from Boston to NE MA received 7-9" of rainfall as did parts of RI.

Along the south coast and the Cape/Islands, an almost staggering number of trees have fallen along with numerous structures damaged or destroyed including roof and curtain wall failures. Many of these structures will likely remain uninhabitable for some time. Along the south side of the Cape and south coast of MA, surge values have caused tremendous inundation with additional structures destroyed. In western and central MA, many areas have been cut off due to the flooding rainfall. The situation is almost as dire in NE MA.

The MA Emergency Management Agency (MEMA) is working with National Guard and local public safety to continue the response to the effects of Ernie. Supplies are being flown into the Cape to Joint Base Cape Cod as state responders continue to try to open roads. While good progress in clearing roads on the Cape and SE MA is being made, roads in the areas of heavy flooding remain mostly at a standstill.

The utility and communications infrastructure has been severely affected. Power is out in the majority of communities in MA. In flooded areas, crews cannot reach the areas needing repair until waters further recede. In SE areas, the power grid has mostly been destroyed or heavily damage. Restoration times will be the longest in these areas. Many radio and TV stations are off the air along with damage to public safety radio communications infrastructure. The greatest damage to radio infrastructure is over the Cape and Islands area where the 800mhz trunking system is almost completely wiped out. The MEMA VHF repeater in SE MA is heavily damaged. Most amateur radio repeaters have been totally wiped out in areas on and near the Cape/Islands. Most cell sites and internet access are likely offline for some time to come.

On the Cape and Islands, shelters are open regionally although generator power is becoming problematical with reserves much harder to obtain as time progresses. Fuel is needed in so many areas of MA that it has had to be prioritized for areas of larger populations where possible.

Most local EOCs are open in communities in much of MA. Communities that utilize amateur radio as a resource are being helped by ARES and RACES operators where possible. This is mostly in regards to sheltering and logistics. Much of the communications are being done on 2 meter VHF frequencies. In areas away from the SE coast, many repeaters remain operational. In coastal section of SE MA, communications are down to mostly VHF simplex operation. HF nets on 60m and 75m are also in operation to help with communications statewide and beyond.

On the Cape mainland, many EOCs have suffered structural damage to buildings, towers and antennas. Even buildings that remain intact have become too hot to occupy with the ongoing generator fuel situation. Field teams for communications have been set up outdoors in Falmouth, Sandwich and the Lower Cape. Mobile field teams are also being used where possible depending on road clearance.

It is now several days since the larger storm impacted the region. It is a hot and grueling situation, but one that needs to keep operating for as long as possible until greater resources can arrive. Be safe and good luck!

Cape District Exercise Objectives

The objectives of this exercise are as follows:

- Deploy field operations sites to Sandwich, Falmouth and the lower Cape
- Deploy mobile field sites
- Establish contact with other ARES districts and their EOCs where possible
- Test zone relay operations with Home Stations
- Communicate with the Nantucket and Martha's Vineyard ARES/RACES stations
- Use HF 75m and 60m voice in the district and attempt contact with the off Cape HF net*
- Allow our new people to get some operating experience and field orientation
- Provide guidance for the rest of the Eastern MA ARES section to participate and develop their own local exercise operations
- Send Winlink SKYWARN and ICS-213 message on 2M VHF FM (Optional)
- Send Winlink SKYWARN and ICS-213 message on HF (Optional)
- Pass NTS formatted messages on VHF FM
- Check in on Echolink New-England3 Node 9123
- Participate in the Winlink mapping operation

Operational Ground Rules

Communications Options to be utilized

Communications options for this exercise will be 2m FM, 440 FM UHF (on field sites), HF 75M and 60M voice. There will be a tactical net on 146.580 MHz FM simplex. VHF and HF Winlink will be used (Optional). Echolink will also be utilized (Optional).

Field teams must be completely self sufficient

The ARES field teams must bring all of their own equipment and supplies. Served agency communications equipment may ***NOT*** be used in any way. ***We only use what we have brought with us.*** Teams operating inside RACES EOC's or other served agency sites are exempt, of course.

Setup and Timeline

Setup time will be 8:30am. The exercise will begin promptly at 10am (HF). The VHF simplex net will begin at 10:30am. The exercise will last approximately 2 hours and will end at 12pm. Timelines may be adjusted accordingly in response to turnout and early completion of primary objectives.

Operational Disclaimers

Due to the proliferation of radio scanners and the possibility of misconstrued information by the public, all tactical voice messages ***that can be misconstrued*** will be preceded by the words **"This is a Drill"**. Any NTS formal messages will have the words **"This is a drill X"** as the first five words in the body text. In this time of national public concern, we must make all efforts to ensure that the general populace is not misled and that amateur radio is not portrayed in a negative manner. *If the message is one that is likely to not be misconstrued, then the words do not have to be inserted.*

Operational Players and Field Units

Sandwich field site-2M Net Control site (NCS)

The Cape Cod ARES Sandwich field site will operate:

- 2m FM 175W station
- 440 UHF simplex
- 75M and 60M voice SSB
- VHF/HF Winlink and VHF NBEMS

The site in Sandwich will be established at the lower parking lot, of the Human Services Building. It will serve as the Net Control site and field site for medium to long range coverage. It will operate self-sufficiently.

Falmouth Field Site

The Falmouth field site will be in a parking lot at Falmouth Hospital with field expedient antennas and power. It will operate 2m FM simplex. It may also have HF operation. It will operate self-sufficiently.

Communications with the islands

Communications with the Islands will be attempted from the Net control station along with ARES home stations, field teams and any EOC stations. Home relay stations can also be employed where necessary to establish contacts by simplex. Nantucket will likely have one or two stations active. Islands communications are critical, as always. We will also accept any contact with any mobile stations on the islands.

Home Operator Stations

Home operator stations will be of value in this exercise as stations that will communicate with the NCS site and field units within their range. We will continue our test of home stations and their ability to serve as backup stations to ARES/RACES EOCs. Home stations can be the primary anchor points for our zones of operation within the district. This exercise will give our member's home stations a chance for testing of any new or experimental equipment, as well as, their emergency power backup systems. This will be an ideal time for the home operators to fully evaluate their stations performance.

Lower Cape Field in Brewster

The lower Cape field will operate on 2m FM and may have HF operation as well.

Lower Cape mobile field site Chatham

The Lower Cape mobile field site will be operated by a one or two team crew. It will operate from a high location in Chatham with an extension masting system. It will operate 2m FM, 440 MHz.

Brewster mobile field site

An experimental mobile field site will be set up in Brewster near Nickerson state park to test an alternate location that may be viable for future operations. It will operate 2m FM and possibly HF.

VHF NET Operations

Primary Tactical NET

The primary tactical NET will operate on the Primary ***simplex*** operating frequency of 146.580 using FM. The net will begin ***30 minutes after the 10am start of the exercise*** beginning at 10:30am. HF operations will begin first at 10am sharp. This will be covered in the HF section of the document. The VHF NET may remain at 146.580 or move, if necessary, to alternate frequencies as required for the exercise.

Operating Procedure for the Tactical NET

The operating procedure for this exercise will consist of a roll call format. The NCS station will do a staggered priority and geographical call up. 1st call will be for ARES/RACES field sites. The second call up will be for any EOC stations in our district (including the Islands). The third call up will be for home and other stations by order of zones in sequence (Outer Cape, Lower Cape, Mid Cape, Upper Cape, Nantucket, and Martha's Vineyard).
Last call up will be for stations outside the Cape/Islands district. After the initial call up, NCS will call each field site and ask for any NTS messaging from those sites. NCS will take one message from each field site. NCS will then poll all field sites and individual check in stations which will read aloud those stations they could hear on the net and attempt direct contact with each of them when requested by the NCS station. This will give our operators valuable contacts and air time. We will evaluate successful communications paths based on that data. All stations will keep a log of whom they can hear. Mobile units (if any) may call NCS outside of the roll call when any mobile operators feel the necessity of doing so.

NTS simulated traffic net and the passing of formatted messages between the field sites

At about 1130am we will conduct a simulated traffic net as part of our exercise operation. It will be simulated as we really cannot run a full traffic net on the same frequency and time as the tactical net. Since we will not be running a separate NTS net on an alternate frequency, we will use this procedure for this exercise. Before the beginning of the simulated traffic net, all of our filed stations will compose an NTS formatted message. The message will contain information as to the number of operators at the site and whether the site is operating on battery, generator, or both. The simulated traffic net will ask for the field station to check in and the field site operators will pass their messages to the NCS. All interested persons are encouraged to copy the messages for practice and/or act as relays if needed.

NTS formal message to be sent into the NTS system

The Sandwich field site will condense all of the messages into a single report. It will then create a formal written NTS message that will be passed to the NTS operator at the Chatham mobile field site (N1ILZ) for insertion into the NTS system for final delivery to the recipient (s).

VHF Winlink operations (Optional)

VHF winlink operations for the Cape and Islands district will involve the sending of a winlink ICS-213 message to the DEC WQ1O at call sign WQ1O using the W1SGL-10 RMS winlink station in Barnstable on 145.090mhz or the WA3SWJ-10 RMS station in Brewster on 145.030mhz. The ICS-213 will state the location of your station and the number of modes that you used in the exercise. Any field site or home station may send this message. Stations using Winlink are also encouraged to send a winlink message using an ICS-213 form to our Eastern MA ARES Section Emergency Coordinator Rob Macedo at call sign KD1CY. This will contain the same information as the messages to the DEC. A SKYWARN message can also be sent to call sign WX1BOX using a ***Severe weather report form*** in Winlink. List simulated hurricane damage and any other you feel is needed. If sending within the Winlink system to another Winlink address, the @winlink.org is not required.

Winlink Mapping operations

We will be creating a map of all those Winlink operators who send the ***Severe weather report form*** to WX1BOX by Winlink. Operators must include their GPS coordinates in decimal degree format on the form. Mapping will only be for stations using this form. The other forms mentioned in the previous section will not be mapped as they do not have fields for coordinates. When sending the severe weather report form, ***you will need to CC the message to W1LEM as he will be creating the map***. The final map will be published on the Eastern MA ARES webpage and a few other locations. Messages can be sent by VHF or HF as long as the coordinates are in the form.

Cape NBEMS VHF operations *TBA*

A Cape and Islands district-wide VHF NBEMS messaging operation will take place on VHF 2 meters (see frequency list).

Echolink operations

Operators with internet access are encouraged to check in on Echolink New-ENG3 9123 node. Although our scenario makes Echolink use unlikely in the area, we wanted to give additional exposure for our members to additional modes of operation.

HF Operations

HF voice operations

HF stations in the Cape Cod and Islands district will attempt contact with the Eastern MA section ARES HF nets which will likely be anchored off Cape to our north. The Net will begin at 10am sharp. The VHF Net will begin 30 minutes later at 10:30am. The reason for this change is that some members would like to participate in both HF and the VHF net. Staggering the time slot will make it easier for those operators to utilize both, especially if they are operating alone at home. Two nets on HF will likely be operating and anchored off Cape. The first will be 75m at 3930 kHz. The second will be 60m at 5330.5 kHz. Cape field sites and home stations are encouraged to check in on one or both nets. In the future we will be increasing our use of 60m for ARES/RACES operations for drills and actual emcomm. If stations wish to contact each other, they may ask net control for permission to do so. If the off Cape net control stations are unavailable, then Cape HF stations will assume the NCS duties.

60m voice operations

HF 60m operation will be first attempted on Channel one 5330.5 kHz. ***As we are a secondary user on 60m, any primary user (US Government stations) cannot have interference from a secondary user. Primary users will have priority access at all times.*** If a primary user is operating on channel one, the net will fall back and be conducted on channel four 5371.5 kHz.

HF Winlink Operation

Stations having HF Winlink capability are free to attempt to send the messages described under the VHF winlink section by HF. A list of currently operating HF winlink RMS stations with locations and modes can be found on the winlink.org online site.

Problem Solving Situations and Improvisation

Unexpected situations

There will be one or two unannounced problem situations in the exercise. This will require the operators to improvise and think “out of the box”. These situations will enhance our ability to adapt to rapidly changing conditions. They will occur without notice, so be prepared to act quickly.

Incident Command Structure (ICS)

ICS functions will be assigned before operations begin at the site. An Incident action plan will be created, if time permits, and distributed for all operators participating. We shall continue to use the ICS in future exercises in order for us to become knowledgeable in operating under this system for served agencies.

Critique and Evaluation of the Exercise

We will have a meeting to critique and analyze the exercise no later than 15 ***days*** after the exercise. All participants should bring their notes and observations for evaluation by the group. All exercises will produce information that could be useful to future operations. Even seemingly small details can prove valuable to our training and development.

This is an *Advanced* Level Exercise

Although CCARES has had some multi-site large exercises in the past, this will be an advanced level operations drill rivaling some of the earlier ones. It could be technically demanding on the field sites.

Cape-Exercise Frequency Usage

Primary Tactical NET: 146.580 Primary FM Simplex

Secondary Simplex 2m: 147.465 FM Simplex

440 MHz simplex: 446.000

Primary 75m HF Operations: 3930 kHz (LSB)

Primary 60m HF Operations: 5330.5 kHz (USB), fall back to 5371.5 kHz if needed. (See page 9)

VHF Winlink: W1SGL-10 RMS station on 145.090 MHz Barnstable. WA3SWJ-10 RMS station on 145.030 MHz Brewster

HF Winlink: See www.winlink.org website

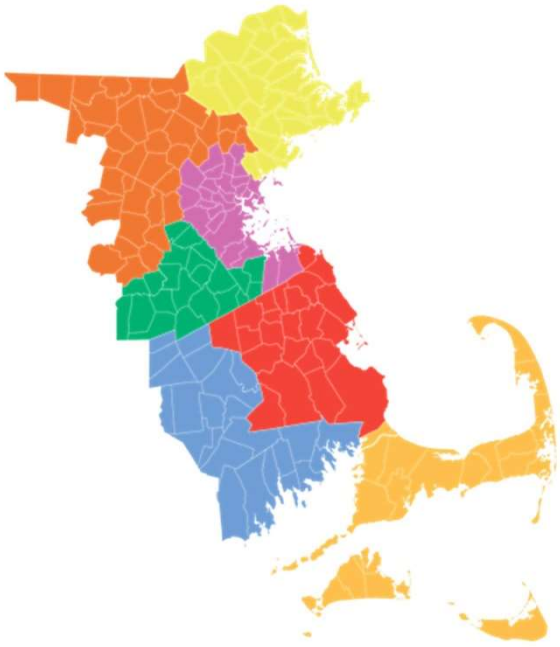
VHF NBEMS: 145.750MHz Mode: 8PSK1200F 1800hz

Echolink: New-Eng3 9123 node

Local Cape District 75m HF: 3950 kHz (LSB)

Eastern MA exercise participation

Eastern MA ARES Map



Although the primary focus of this exercise design is for the annual Cape summer exercise, The Eastern MA section ARES likes to take advantage of any training and exercise opportunities beyond the normal Simulated Emergency Tests and region wide full exercises. The scenario was left quite broad allowing for many local and district based emcomm groups to develop plans for their own participation. You are free to use any of the operational modes listed earlier in the document or add your own as needed. Some basic objectives are listed below. These are not all requirements. Groups may use what works for them.

Section Wide possible objectives

- Simulate the activation of shelters in your area
- Simulate the activation of EOC stations in your area
- Establish and conduct a tactical net on simplex 2m FM/ repeater for your group
- Simulate contact with any Town EOC RACES stations
- Establish contact with other ARES districts where possible
- Establish an HF 75m and 60m voice net for all of MA (and potentially other areas)
- Pass an NTS type message on VHF 2 meters and/or 440mhz UHF
- Pass a SKYWARN and/or tactical message on voice 2 meters and on the HF net
- Optional: Pass a SKYWARN Severe weather report form using VHF/HF Winlink RMS to wx1box
- Participate in the Winlink mapping operation by using the severe weather report form
- Optional: Pass an ICS-213 message form on VHF/HF Winlink RMS to kd1cy
- Optional: Send messages to other stations by VHF/UHF Winlink P2P if you have no HF digital or simply want to practice Winlink locally
- Optional Send messages locally by VHF NBEMS
- Check in on the NEW-ENG3 9123 Echolink node

VHF/UHF operations

Local ARES or RACES groups are free to determine their own local modes of operations for this exercise.

HF Operations

HF nets are to be set up on 75m and 60m. They will run for the duration of the exercise. There will be an increasing use of 60m in section exercises. 75m operation will also still occur to ensure that those without 60m can still participate (see page 9 for 60m operations).

Digital operations

Digital modes may be used as an optional activity by any group in the section. You can use your own modes and frequencies in addition to the any Winlink operations.

Winlink Mapping operations (from page 8 of the Cape/Islands part of the document)

We will be creating a map of all those Winlink operators who send the ***Severe weather report form*** to WX1BOX by Winlink. Operators must include their GPS coordinates in decimal degree format on the form. Mapping will only be for stations using this form. The other forms mentioned in the previous section will not be mapped as they do not have fields for coordinates. When sending the severe weather report form, ***you will need to CC the message to W1LEM as he will be creating the map***. The final map will be published on the Eastern MA ARES webpage and a few other locations. This portion of the exercise is open to all participants in the Eastern MA section in addition to the Cape and Islands participants. Messages can be sent by VHF or HF as long as the coordinates are in the form.

Frequency usage

Two meter local voice nets: - The following is a list of key frequencies with any additional frequencies at the discretion of local ARES Group

147.000-Dartmouth Repeater (PL: 67.0 Hz)
146.895-Walpole Repeater (PL: 123.0 Hz)
146.955-Westford Repeater PL: 74.4 Hz – Billerica CERT/PART team – SKYWARN Starting at 1030 AM
147.435-Western Middlesex ARES Simplex (PL: 110.9 Hz)
146.580-Cape Cod ARES Simplex (No PL)

The MMRA Network will be utilized at the section level – a link to the repeaters linked up is listed at the end of the frequency usage document

Secondary Frequencies that will be monitored:
146.985-Blue Hill Science Center – Milton, MA (linked) (PL 88.5 Hz)
449.125-Blue Hill Science Center – Milton MA (linked) (PL: 146.2 Hz)
446.325-New England Sci-Tech - Natick, MA (PL: 146.2 Hz)

Two meter local NTS net: At discretion of local ARES Group – At the section level – the MMRA Network will be utilized for section NTS traffic

UHF voice and/or NTS net: At the discretion of the local ARES Group

VHF/UHF NBEMS: At the discretion of the local ARES Group

Winlink Express VHF: 145.090 FM or other local Winlink RMS stations on other packet frequencies – See http://www.n1xtb.net/EMA_packet_map.html for locations of RMS stations and packet frequencies

Primary region wide 75m HF Operations: 3930 kHz LSB

Primary region wide 60m HF Operations: 5330.5 kHz USB except fall back to 5371.5 kHz if the primary frequency is occupied by a primary user (see page 9)

HF Winlink stations: See online list on the winlink.org site

Echolink: NEW-ENG3 node 9123 IRLP: 9123

Minute Man Repeater system (MMRA) linked repeaters VHF/UHF (see MMRA.org for repeater list): http://www.mmra.org/repeaters/repeater_index_by_linkstate.html