

# Emergency Radio Internet Linking System

The Program:

During the 2008 Hurricane Season, ARRL Headquarters instituted a Command-Control-Coordination (C3) operation to support operations taking place in the Sections. One of the aspects that was required in this support activity was the needed capability for ARRL HQ to establish radio links into the affected areas. Due to a number of factors, such as the bands of operation of local-regional emergency nets and the lack of sunspots, W1AW had no capability to reach into these areas. Even when propagation improves with the return of Sunspots, normal characteristics of the bands will not permit continuous communications links over the high frequency bands from Newington.

One tool that was used extensively during this past tropical season was Echolink, if local repeaters were so enabled. Echolink was also used to maintain contact with the National Hurricane Center and the VoIP Hurricane Net operations. The existence of HF nets on the 40 and 80 meter bands while providing excellent coverage of several hundred miles in the impacted areas, did not allow W1AW to come up on any of these frequencies if needed. Nor did it permit monitoring of conditions to develop and maintain a higher level of situational awareness/disaster intelligence necessary for the Headquarters support operations. This was a capability that was lacking at ARRL HQ. Note the intent is to develop all the necessary communication capabilities to impact emergency communications needs anywhere in the world at W1AW.

A solution to this inability was found to exist and was exploited using the capabilities of Echolink and HF radio by Dr. David Woolweaver, K5RAV. K5RAV had good propagation into the impacted areas during the tropical events in the Gulf of Mexico area and established a connection between his home HF equipment and the Echolink program. By making this connection, W1AW was able to use a direct Echolink connection to K5RAV's home station enabling HQ to come up on these HF frequencies. Simple, elegant and it worked.

This capability greatly added to the available resources of W1AW. The need to build out this capability was clear and K5RAV began to enlist some other stations in his State to develop this linking tool. However, it has been an ad hoc effort with known stations, and there was no official standing of these stations for emergency communications with the ARRL. Additionally, while a regional capability was developed in a part of Texas, the need was to have this capability wherever the ARRL had a presence throughout the rest of the country. When this program is in place, it would not only serve ARRL HQ, but any number of our partner organizations that utilize amateur radio in their disaster responses. ERILS is a program to support the HQ-Field Organization coordination during any disaster response that requires that level of interaction. It is not meant to be utilized for casual operating.

The concept of the "Emergency Radio Internet Linking System" (ERILS) was crafted to meet this need. ERILS would be operated under the Emergency Preparedness & Response Program. Official ERILS Stations would be designated after meeting specific criteria that would enable them to blend the capabilities of radio and the Internet that would permit emergency communications to occur. Attachment 1 contains the suggested station criteria. Stations would be geographically diverse which would provide redundant pathways into multiple areas of the United States. While Echolink was utilized successfully in 2008, other current and future software platforms could be used with traditional RF capabilities to meet the mission needs.

The number of stations in the program would not be at the level of the ARES OES, nor is this program conceived to be one under the auspices of individual Sections. It is a program being proposed through this concept paper to be a national resource for headquarters. However, Section Managers will have input into proposed stations in the geographical area they are responsible for, as their knowledge of individuals is beyond what is possible at the HQ level. See Attachment 2 for the suggested application process.

All costs for stations would be borne by the Station Licensee, including the required Internet connections. The only projected cost beyond ARRL HQ staff time to organize and maintain the program, which would be part of normal duties, would be for certificates designating the station as part of the program.

#### Emergency Liaison Station:

As discussed above, individual stations are the key component of ERILS. These stations require a particular designation for planning and response purposes, and as recognition of the station owner's resources and commitment. These would be designated as an Emergency Liaison Station.

An Emergency Liaison Station (ELS) is an Amateur Radio Station designated by the Manager of Emergency Preparedness & Response (EP&R) to act as a linking interface utilizing traditional radio frequency (RF) circuits and the Internet to provide specific emergency communications connectivity. Stations will meet specific requirements to receive this designation. This linking will permit communications to be established into disaster areas that cannot be contacted using direct RF means (as demonstrated in 2008), but can be accessed through local/regional stations that have propagation into the area with the appropriate RF circuit with an Internet link to W1AW or other ARRL designated location. These locations can be ad hoc disaster headquarters, disaster field operations, or established Emergency Operations Centers of governmental and non-governmental organizations. An ELS is not an Official Emergency Station (OES) that is part of the ARES program, but is a separate resource available to the Manager EP&R, or designees, and ARRL Leadership. The concept of station participation is similar to the Official Observer program.

It is believed that these resource capabilities should be developed throughout the United States to add to the "tool box" of amateur radio capabilities when we are called upon to provide emergency communications. The creation of an official program to support these activities and the stations that comprise the system should be undertaken without delay to be ready for any response to the 2009 Hurricane Season and for other calamities that will occur.

#### Suggested ELS Criteria

- FCC Amateur Radio License holder of General Class or higher
- High Speed Internet Connection
  - Dial-up connections not accepted
- Primary and back-up HF transceivers
- Multiple antenna capabilities for minimum of operating on 80, 40 and 20 meters
- Experienced Echolink user capable of interfacing software/hardware with HF transceiver
  - Training documentation to be provided
- Computer equipment necessary to support current and future software platforms
- Control operator availability/capability for long durations
- Backup power capability for station suggested