QNI NEWSLETTER

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How Mobile HF Antennas Work

- A simplified explanation

It should come as no surprise that the length of an HF mobile antenna is determined not so much by any electrical requirement, but rather by the need to avoid contact with overhead obstructions ranging from tree branches to highway overpasses and power lines. Therefore, it is safe to assume that most HF mobile antennas will be much shorter than a quarter wavelength and therefore *capacitively reactive*. Perhaps the only common exception might be the once ubiquitous 102 inch 1/4 wave whip once popular with CB operators, which is naturally resonant at 27 MHz and which is perhaps even slightly inductively reactive on 10-meters.

Understanding Reactance:

In a capacitively reactive circuit, current leads voltage. The phase angle between the leading current and the supply voltage will determine how much power is used by the antenna versus how much power is returned to the source. If we

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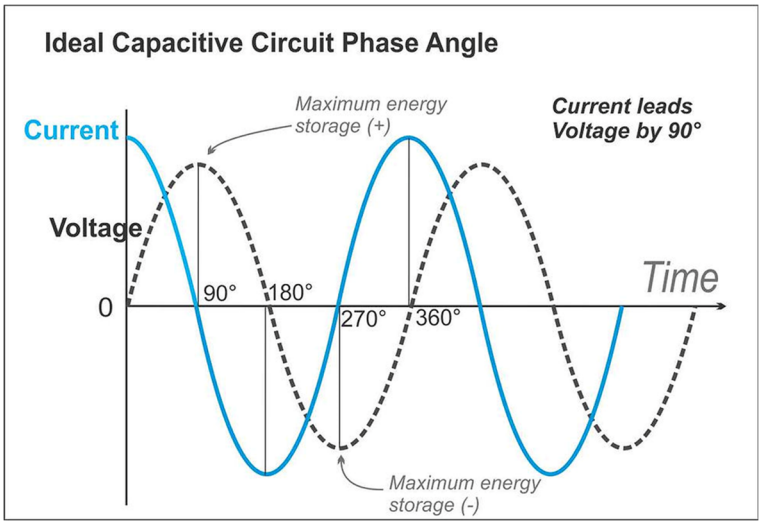
In this issue:

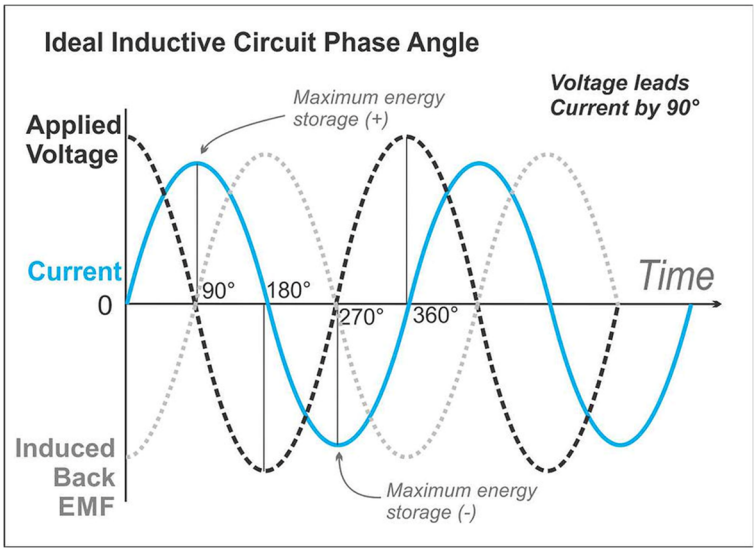
Winter/Holiday Issue

MERRY CHRISTMAS TO ALL

Radio Relay International would like to wish all radio amateurs a Merry Christmas and Happy New Year. May the holiday season and new year bring each of you good health, peace and prosperity.



In a theoretical purely capacitive circuit, current leads voltage by 90°.



In a theoretical purely inductive circuit, voltage leads current by 90°.

attempt to feed RF to a capacitively reactive antenna considerable energy will be returned to the source. This will be seen as an impedance mismatch and a high SWR.

Because an inductive circuit behaves in an opposite manner in which voltage leads current, it can be said that *inductive reactance and capacitive reactance pull in opposite directions*. Therefore, we can "cancel out" capacitive reactance in our short radiator by adding enough inductance to the point where inductive and capacitive reactance is equal and opposite in phase at the desired resonant frequency. This provides the correct impedance match and the antenna will accept the power from the transmitter. This will be seen as a low SWR.

One can see this relationship intuitively by observing the fact that for the same length HF mobile antenna, the loading coils (inductors) become smaller for each successive high frequency band. This is because the radiator exhibits less capacitive reactance as operating frequency increases, therefore, one needs to adds less inductive reactance to balance it at the desired resonant frequency increases.

The equivalent circuit:

One might view an HF mobile antenna as a simple series circuit consisting of an inductor, capacitor, and two series resistors, one of which represents the beneficial "radiation resistance" that radiates the RF, and the other of which represents undesirable I^2R losses in the ground plane or return path to the source. A typical HF mobile antenna is therefore classified as a "Marconi antenna" because it relies upon the ground plane to complete the circuit back to the source. If the ground plane exhibits poor conductivity, I^2R losses increase and field strength will decrease. If the ground conductivity is good, antenna performance will improve and field strength will increase.

Another factor affecting an HF mobile antenna is the placement of the inductor (loading coil) along the length of the antenna. Center loaded antennas tend to exhibit higher efficiency than base-loaded antennas because current distribution along the length of the antenna is better. A "capacity hat" will further improve current distribution along the length of the antenna resulting in a higher field strength.

Finally, the construction of the loading coil will also affect performance. The material used for the form, the size of the conductor used in a loading coil, and any mechanical or electrical connections can all affect antenna performance. Solid bonding to the vehicle body or frame using a low-impedance conductor will often show improved performance and reliability. Flat copper strap or braid works well for this application.

A "Texas Bug Catcher." Photo courtesy of the Main Trading Company (MTC)

As a general rule, center loaded whip antennas with well made coils and of solid construction will perform best. It is up to the radio amateur to determine the trade-off between maximizing efficiency and the mechanical nature of the antenna.

Being known for both its high efficiency and shear aesthetic ugliness, the "Texas Bug Catcher" mobile antenna design exemplifies much of this theory applied to practice. However, its use also presents some significant mechanical challenges for the user.

The author has had used the "Texas Bug Catcher" design, the Hustler antennas, and several low-profile antennas for operating mobile CW. By far, the Texas Bug Catcher offered the best performance, but lower profile antennas of good design, such as the "Hustler" brand units have proven an excellent compromise that balances mechanical and aesthetic requirements against efficiency.

HF mobile capability is well worth having, particularly if one ventures into rural areas with limited repeater infrastructure. One can always establish connectivity on HF even if operating from some remote area or from an area devastated by disaster.

ATTRACTING YOUTH TO AMATEUR RADIO

By James Wades (WB8SIW)

The author recently attended an Amateur Radio Club meeting at which the Section Emergency Coordinator talked about the need to build a team that can respond to a crisis when called upon to do so. Looking around the room, it was obvious that there was no one under the age of 60 present and most members were well over the age of 70. This demographic situation is probably common in many areas, and let's be honest, those of us in their 70s and 80s are not always well suited to responding to a high-stress, extended emergency operation.

The following day, I asked a classroom full of High School Juniors and Seniors to raise their hands if they listened to AM or FM radio. Because several of the students were sports fans, I assumed that at least a few

might have listened to a baseball or football game on one of the Chicago 50 kW stations. *Absolutely no one had ever listened to the radio*!

For many of us over 60 years of age, our first exposure to the mysteries of radio probably started with building a crystal set or staying up late at night hunting distant stations with a homebrew one-tube radio built around an old type 30 or 1T4 vacuum tube (valve). Radio was a portal to a world beyond the neighborhood or local community, and those first experiences naturally led to Amateur Radio. Venturing into the world of ham radio went a step further and it felt a bit like unlocking the door to a hidden, secret room or joining a secret society full of esoteric knowledge, secret passwords, and its own language of International Morse Code.

In contrast, today's youth have come of age in a world in which most of their "imagining" is done for them. There is little mystery to behold in a world in which everything is perceived through a glowing monitor awash in images saturated in rich, primary colors combined with the addictive, constant stimulation of 500 millisecond scene changes. For many young people, the idea of reading and studying to earn a ham radio license to participate in a hobby seems foreign as does the idea of working with one's hands. As a matter of fact, one might argue that the delayed gratification associated with hobbies of any type is antithetical to a generation conditioned to expect instant gratification via the virtual world. It is not unusual to encounter a room full of high school students who can't read a simple ruler or use a hand tool.

Creating a framework to develop new radio amateurs:

Looking at the various attempts to interest youth in ham radio, there seems to be two common approaches, one of which involves the "club model" and the other of which is the STEM model. The former seems to lack the stimulation expected by youth, whereas the latter lacks the focus needed to properly introduce students to the basic technology and art of radio communications. Furthermore, in many school systems, STEM focuses more on elementary (primary) school students, most of whom have not yet developed sufficient intellectual skills to pursue the technical hobby.

Students using a capacitance bridge to explore capacitive reactance and dielectric breakdown.

A possible path forward:

The local school system recently asked the author to teach a career technical education (CTE) course on electrical and electronic theory and its practical applications. While state regulations govern much of the general subject matter of the course, the inclusion of some Amateur Radio material fits quite well. The theory side of the license material covers a variety of basic electrical concepts, the depth of knowledge required for which is considerably less than that required to pass the course and other certifications. Therefore, passing the FCC license exam can reinforce basic concepts and serve as an excellent external measure of student achievement.

From ohms law to basic AC theory, the knowledge needed to understand ham radio is directly applicable to other fields. For

example, power supplies explain transformers, rectification, semiconductors and regulator circuits. A good quality grid dip oscillator, a coil and variable capacitor can be used to illustrate inductive and capacitive reactance, resonance, and energy transfer in an easy-to-understand way. A capacitance bridge can intuitively illustrate tests and measurements without the need to rely entirely on math. Simple circuits can be built around transistors, integrated circuits, relays, and so forth, all of which are part of both Amateur Radio and the world of industrial controls.

While the ultimate purpose of the academic course is to prepare a student for success in various electrical and electronic fields, ranging from electrical contracting and industrial controls to manufacturing or utility and infrastructure employment, the science and art of radio communications can reinforce many important theoretical concepts. Furthermore, exposure to some basic wireless communications methods is very relevant in today's world full of wireless devices and networks ranging from the ubiquitous cellular data networks to the wireless SCADA and telemetry systems employed by utilities, pipeline companies, and the like.

The inclusion of Amateur Radio material in an academic program with real academic credits means that Amateur Radio is seen as something more than just a hobby. The license exam can be seen as an early-phase, basic certification through which student confidence can increase and through which the knowledge gained is a step toward a career. In such cases, parental support is also likely to be forthcoming.

Students explore reactance and resonance using a grid dip meter an L-C circuit.

Will this lead to more active radio amateurs?

The answer to this important question has yet to be determined. However, the author has concluded that while on-line ham radio prep and "ham-in-a-day" classes may be successful at creating licensees, they mostly fail at creating *real radio amateurs*. Many "ham-in-a-day" graduates are not interested in the exploration of RF technology or the art of radio communications, nor are they interested in the social/fraternal dynamic of the hobby. Many will never join organizations like the ARRL, RRI or the local radio club. For these licensees, ham radio is an "app." In reality, a healthy Amateur Radio Service needs a critical mass of younger people who have a genuine interest in the technology and art of radio communications. One cannot provide the necessary background in a few days of instruction but one can definitely provide the necessary background by integrating Amateur Radio into an academic program with its in-depth approach to theory and practice.

Time will reveal the results:

In our case, considerable effort has been invested in developing appropriate training materials and course content from scratch. We have been fortunate that a local college has generously provided the necessary classroom space for the course, but the cost for materials and equipment has been a significant factor to

overcome, as it is in most school systems. The author has provided much of the necessary test equipment, parts, and consumable materials out of his own pocket during the initial year. During the coming months, we hope to procure sufficient resources to build a modern Amateur Radio station through which they can better apply the theory learned in the course. In the meantime, we have already had some real success using RF concepts to illustrate basic theory in a meaningful way that enhances the educational experience.

The first group of students will sit for their Technician exam in December of 2025, to be followed by the General Class Exam in the second semester. Academic credit will be provided for passing the FCC exams in addition to the core content.

Within a year or two, we expect to have a thorough understanding of best practices for integrating Amateur Radio into the academic environment. We will then make our course information available to other schools wishing to replicate our program.

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HELP WANTED!

Radio Relay International Needs Your Help

RRI needs some leadership volunteers. The loss of several key members over the past year tells the tale….we need a deeper bench to win the game. Here are some volunteer positions that would do much to help both RRI and NTS:

CW Bulletin Manager:

The CW Bulletin Manager is responsible for transmitting a CW training broadcast once per week on a weekday evening of his choice (except Friday and Saturday evenings, which are now dominated mostly by contests and sprints).

The CW Bulletin text consisting of practice radiograms designed to build the confidence of new CW traffic handlers will be provided in advance. A computer and software will be necessary to transmit the bulletins.

One needn't perform this task entirely on his own. The CW bulletin manager can recruit others to assist with the weekly bulletin transmission process. As a matter of fact, some geographical distribution will likely prove helpful.

One will need the ability to transmit the bulletins automatically as well as the ability to transmit a solid signal. An amplifier and good antenna system will help.

Certified Radio Operator (CRO) Training Coordinator:

The CRO Training Coordinator will be responsible for processing applications for CRO status. This is done by verifying that the required training classes have been completed and the necessary on-air experience demonstrated or otherwise verified by resume. The CRO Coordinator will also be responsible for printing and mailing certificates and updating the CRO roster.

Net Manager and NCS volunteers – Zello Training Net:

The forthcoming Zello Training Net utilizes an application easily installed on any smartphone. This allows the smartphone to behave like a two-way radio, making it an ideal tool for training both traffic handlers and EmComm volunteers in proper voice communications procedures.

The weekly net will behave much like any routine traffic net, with the exception that the NCS or his designee will transmit one or two training radiograms to provide receiving practice. Drills focusing on proper use of prowords and phonetic alphabet will conducted using RRI training publications, and participants will be encouraged to originate radiograms for transfer into the regular RRI/NTS system.

Digital Traffic Stations:

Digital Traffic Stations provide liaison between the Digital Traffic Network and their local/section traffic networks. Ideally, each NTS section should have three DTS volunteers to ensure redundancy, particularly in the event of a communications emergency.

Also, RRI would like to increase the redundancy of the DTN by adding additional Region and Area "hot standby" hubs. The hot standby hubs can be activated to fill in a gap in the network due to the loss of an Area or Region hub. When activated, the hub functions mostly unattended, other than the need to check them approximately once per day during routine conditions to make sure they are functioning properly. A DTN hub operator requires only a multiband antenna and an inexpensive transceiver of recent vintage.

Those serving as DTS should obtain Certified Radio Operator status by attending the required RRI training courses within six months of appointment.

Winlink-RRI Gateway Operators:

The Winlink-RRI gateway operator accepts incoming radiogram welfare radiogram, or radiogram-ICS213 traffic originated via Winlink and transfers it to Region Nets. During routine times, traffic is light, but in time of emergency, traffic volumes increase. As a result, RRI would like to have at least three volunteers for each NTS region. This also allows the volunteers to staff the gateway in shifts in time of emergency.

During emergency conditions, the gateway operator is responsible for expediting the routing to the last mile in the most expedient way. All that's required is Winlink capability and knowledge of traffic handling procedures. The ability to access voice traffic nets is sufficient, although multimode capability is preferable. (CW, voice, manual digital modes).

Those serving as Winlink-RRI gateway operators will eventually need to obtain Certified Radio Operator status by attending the required RRI training courses within six months.

How to volunteer:

Please send an email to: James Wades (WB8SIW) at: jameswades@gmail.com. Indicate in the subject line "RRI Volunteer:" followed by the role for which you are volunteering. In the text, please provide your contact details so someone from RRI can reach out to you.

Choosing a Net Frequency—Don't be a "lid"
By James Wades (WB8SIW)

Years ago, it was common to hear radio amateurs use the term "lid." This term, inherited from the telegraph industry, has deep roots dating from the 19th Century. Its exact origins are unknown, but it has always been a derisive term used to describe an incompetent or rude operator. Some years ago, the use of the term in an article in World Radio magazine resulted in some very emotional responses and criticism of its use but, let's face facts; "lids" exist. These are the inconsiderate operators who tune up on existing QSOs, squeeze existing communications off a frequency at the start of a contest, or ignore other modes because they are seen, consciously or unconsciously, as being somehow less worthy of access to a frequency.

A good example happens almost every morning on 7112 kHz. The HBN CW net has been meeting on that frequency for many years. Almost without exception, once the net starts up a group of digital operators transmit right on top of the proceedings. Their behavior and timing is so consistent, the transmissions often seem purposeful. Adding insult to injury, a group of Canadian SSB operators then camped out on the same frequency, apparently having picked it for their group without any prior research.

What are the motivations of these operators? One can only speculate. Perhaps some feel they should "own" the frequency and resent the operation of the net on their adopted "channel;" a behavior reminiscent of the bad old days of CB radio when operators lost in extended adolescence would fight over a channel, often using illegal power amplifiers.

Another theory one might offer is what the author calls the "motorist theory."

Have you ever known a seemingly nice person who becomes aggressive and rude behind the wheel of his automobile? This theory suggests that the physical barrier and distance between drivers facilitates a certain "dehumanizing" perception of others. Simply put, a narcissistic driver tends to sees other motorists as somehow less than fully human and therefore unworthy of the reasonable courtesy or accommodation that would otherwise be offered in a shared public space. In other words, he objectifies those around him.

Applying the "motorist theory" to ham radio, it seems that a certain "mode differential" drives some discourteous behavior. If the frequency is occupied by communication using a mode of little interest to an inconsiderate operator, he may tend to dismiss that communications as unimportant and undeserving of accommodation. Other operators simply ignore the voluntary band plan, particularly when it's contest time. These are the operators who will step on and push out existing QSOs at the "zero hour" start of a contest, with no respect for the fact that the QSO was already in progress.

Finally, we have those who sees the Amateur Radio Service not as an open field for exploring the art and science of radio communications or altruistic public service, but rather as an "app" or a free resource to be exploited for one's own purposes. For these individuals, there is no need to consider the fraternal aspects of the hobby, join the local radio club, donate to the repeater organization, pay dues to the ARRL or a similar organization, or participate in organized public service nets. These individuals function a bit like squatters who expects to occupy the property (RF Spectrum) without paying the mortgage or the rent.

One might assert that “ham in a day” classes and “easy preparation services” promoted by social media exacerbate this problem because they succeed at getting people licensed but ultimately fail to connect them to the community of radio amateurs, its history, or traditions.

We must communicate to new licensees that the Amateur Radio Service works best when participants accept the fact that the available frequency spectrum is a shared space. Courtesy is a social lubricant that facilitates the peaceful coexistence of people and varied operating interests.

Before starting a net or changing a net frequency, exercise the basic courtesy of monitoring the proposed frequency for a week or so at the proposed time. See if other nets are present. “Google” can also be your friend. Search the word “net” and the frequency to see what the search engine reveals. Also, RRI publishes an up-to-date net directory, which could also prove helpful.

Pulling a frequency out of thin air is not the responsible course of action. Instead, conduct some simple research and choose your new frequency wisely. Likewise, show respect for communications via other modes, even if you can’t decode them or have little interest in them. Those communicating are radio amateurs too!

Lastly, remember that in a civilized society, courtesy is granted by default as a recognition of basic human dignity. Respect, on the other hand, must be earned. Those who engage in inappropriate or rude operating practices are not worthy of respect in the community of radio amateurs.

Request for Information Strips and WXOBS
By James Wades (WB8SIW)

Despite continuing advances in information technology, the Amateur Radio Service retains considerable value in the emergency management field for several reasons including:

- Radio amateurs are naturally dispersed throughout a disaster area.
- The Amateur Radio Service maintains its own infrastructure of nets, digital systems, and repeaters.
- The nature of amateur radio assets is such that they are capable of being adapted in a very dynamic manner in response to problems.
- Organizations such as RRI, and NTS provide the structure and commonality of purpose needed for effective communications response.

In order to further leverage the benefits of the Amateur Radio Service, The RRI Emergency Communications Committee under the leadership of Steve Hansen, KB1TCE, recently began working on a program to better manage “requests for information,” also known as “RIs.” An RI is basically a request for some type of situational awareness information. It can range from information about highway closures, impassible roads, weather data, or similar information.

Within the RRI National Response Plan, there are three types of “situational awareness reports” that can be requested. These can be summarized as follows:

WXOBS: A report of current weather data, such as temperature, pressure, wind speed/direction, precipitation, etc.

SITREP: A report of events/observations that could be helpful to emergency services responding to a disaster. Data reported might include road closures, storm damage reports, widespread power outages, telecommunications outages, etc.

OPRED: Operational readiness reports, at least in the context of RRI/NTS, serve as a network management tool. These are transmitted to a network coordinator who creates a modified ICS-205 communications plan. This spreadsheet shows which stations have connectivity to various agencies or EmComm groups, nets on which they are active, and any operating constraints they may have (e.g. hours of operation, reduced power, operating on battery, etc.).

Beginning this summer, RRI developed a new methodology for submitting these reports. This new process is ideally suited to digital communications but can also be applied to manual modes. It can be summarized as follows:

- An RI strip is distributed to operators throughout the traffic system. A simple software program then converts this strip into a "query" table in which the operator fills in the blanks with the requested data.

- Once the answers are populated in the table, the software can then produce a "response to request for information" strip. This strip is then placed in the radiogram or radiogram-ICS213 text field and transmitted to a specified "target station."

- The target station receives the radiogram responses, performs a quality control check, then transfers them to a spreadsheet. This spreadsheet can then be made available to multiple emergency response agencies.

The initial roll-out is built around a standard RI strip creator for weather observations. WXOBS messages are very useful to not just the National Weather Service, but also organizations ranging from the Army Corps of Engineers to local water and sewer authorities. In the event of major tropical storms, flooding events, or major winter storms, the WXOBS reporting process can be implemented at the local, state, or regional level.

While the RI strip method is ideal for use on digital circuits and for allowing for the rapid creation and updating of spreadsheets, it can be a bit "clunky" on voice or CW circuits. However, some specialized techniques can simplify the process of transmitting an RI response strip via manual modes.

The Purpose of the Program

So why go through this process? Why not just transmit the data verbatim? The answer lies with the end-user. If one listens to various "emergency net" and the like, one will notice two problematic conditions:

- Net controls often emulate broadcast techniques. Considerable time is spent broadcasting various bulletins that are readily available from public sources, such as the Internet and broadcast radio and television. Most of the information flow is moving from the net control to the field when in fact, the agency needs information that flows from the field to the decision makers.

- Perhaps it's the nonconformist nature of ham radio operators, but some eschew requests to use a stand-

ard message format or protocol. One will hear information transmitted in a variety of fashions, and much of this information is not presented in a predictable, repeatable sequence. However, in contrast, in the emergency operations environment, it is desirable to receive data in a predictable sequence. This makes it easier to digest and cull out the important information under the stress of emergency operations.

In the RRI course entitled "Emergency Communications Planning," we stress the fact that radio amateurs should not confuse "establishing connectivity" with "communications." The former is technological, whereas the latter involves the essential human interaction and multiple administrative activities at both ends of the process. Whereas the volunteer may feel there is no harm in using a haphazard approach to reporting, the decision maker receiving the message will be short on time, burdened under a process of multi-tasking, and he may need to analyze and share the data he receives with others . If he must consume unnecessary time trying to understand the intent of some ham radio operator in the field while other priority information is piling up, he will be more likely to toss it aside.

The "request for information" process is a way to ensure the standardized, sequential presentation of data in a manner that is searchable, easily distributed, and easily processed by the end-user.

More information on the "RI" process can be found on the RRI website. This information may prove useful not just to RRI and NTS operators, but also to local EmComm organizations.

The Wreck of the Klamath
By Bernard W. La Fetra

It was on the afternoon of February 4, 1921 that the Steam Schooner *Klamath*, belonging to the McCormick Steamship and Lumber Co., was preparing to leave for Portland, Oregon. My assistant wireless operator, Mr. Ernest F. Wilmshurst and I had checked the wireless equipment and found everything in perfect condition. What seemed like a normal sailing later proved to be a nightmare and the last departure for the "good old Klamath."

Our ship, with a compliment of 34 officers and crew and 19 passengers, less than half the normal list, sailed at four in the afternoon and no sooner had we passed Point Reyes, following the California coast, then we headed directly into what proved to be one of the worst gales ever to strike the coast from the Aleutians to Southern California. The Steam Schooner *Raymond*, radioed for help, the *Washington* was 35 hours overdue, the *South Coast* 24 hours overdue, and the *Oregon* some 30 hours in making port.

The *Klamath*, under command of Thomas Jamieson, wallowed, plunged, and rolled, fighting its way up the coast against almost unsurmountable odds, finally being driven off its course and striking a reef. Immediately the tail shaft and propeller were rendered useless. Captain Jamieson, sizing up the situation, determined we were off Del Mar Landing, two and a half miles south of where the Guala River empties into the sea, and some 20 miles south of Point Arena. He then hastened to order distress signals sent out and all passengers and crew to the decks.

I received many responses to my SOS signals. Station KPH at San Francisco answered immediately. The pas-

senger steamer *Curacao* bound for Portland and just a few miles ahead of us radioed she would alter course and come to assist at once. Also, a sister ship, *City of Everett*, under the command of Captain John Foldat, advised they would seek out the Klamath. The Point Arena Coast Guard station also responded that they would try and launch surf boats but they had to abandon attempts as the seas were too high and rough.

Any attempt to launch our own lifeboats proved futile as the forty foot waves were crashing completely over the stranded vessel, rolling it over on its side with each broadside.

One of the sailors on our ship, Charles Svensen, volunteered to leap into the sea and try to make it to shore with hundreds of feet of small rope tied about his waist. We could hear the waves booming against the rocks and shore but miraculously, he was successful. With the small line he pulled heavier rope some three hundred feet or more and made it fast to a large rock ashore. Over this line a breeches buoy was rigged and one by one, trip after trip, the passengers were sent ashore.

The gale winds, driving marble size hail stones with terrific force, offered additional hazardous conditions under which rescue work had to be done. A problem of getting an eighteen month old baby ashore was solved by an ingenious seaman who tied a container similar to a garbage can to his back, and little Phil Buckley, the youngster, was placed in the can surrounded by blankets, the top was tightly pressed down, and the seaman went over the long line. Usually during the trip over a wave would smash against the ship rolling it over on its side allowing the breeches buoy line to sag down way underneath the sea, almost drowning the person making the trip, but the hand of providence saw to it that the baby made the journey over the line without the usual dunking.

While the rescue work was going on, I stayed at the radio trying to get every assistance I could but finally had to give up when the ship was being twisted and the masts were swinging, breaking the aerial and rendering it useless.

When all passengers had left the ship, and all crewmen except me were ashore, the Captain ordered me to leave and he followed, being the last to leave the stricken vessel. It was about five o'clock when the rescue work was completed. Soaked to the skin with the freezing winds howling about us, passengers and crew members had to huddle together as close as possible to keep from freezing to death.

At dawn, and with just light enough to see, Captain Jamieson climbed the cliffs, located a house in the distance and appealed to the occupants to please give the passengers food and help.

Off shore, still wallowing about in the heavy seas, was the steamer *Curacao*, wondering if it could be of any help. The wireless operator aboard the *Curacao*, Mr. Halle Medcalf, thought of a way to communicate with us on shore. Using the ships whistle, he blew many long blasts to attract attention, and then started spelling out in the long and short blasts the International Morse Code message which read "if you do not need us wave white flag," which I repeated verbally to the Captain who immediately took of his white shirt, tied it by the sleeves to a long stick and waved it toward the north. Great clouds of smoke poured from the stack of the *Curacao* and it steamed out of sight.

Within the next day or so, most of the passengers and crew were hauled by horse and wagon over washed out roads to Pont Arena where they were transferred to auto stages and taken up the coast sixty miles to

Fort Bragg [*Ed. Note: A city in California about 16 miles north of Mendocino*].

Eight or ten of the crew, including my partner and I, were selected by the Captain to stay at the scene of the wreck to see if the Klamath could possibly be towed off the reef. The Red Stack Company's ocean-going tug *Sea Lion* had arrived at the scene and sent an officer ashore in a small boat to plan for the effort to free the Klamath. At high tide, early in the morning, all of us went back over the line to the wrecked vessel and managed to get large hawsers from the tug fastened to the ship. I managed to make some hasty repairs to the wireless equipment so that I could send a short distance and communicate with the Sea Lion. When everything was ready, orders to start pulling were radioed to the tug, and all of us left the ship for safety reasons.

The hawsers tightened like fiddle strings and from shore we could see the decks and superstructure were literally being pulled out of the ship. The captain realized then and there any efforts to save the stricken vessel were doomed.

The captain then decided to keep us there for a few days longer to do some salvage work. We returned over the line to the vessel after the storm subsided and dismantled all valuable articles, sending them ashore over the line. I carefully sent all wireless equipment ashore. Where it was later picked up and brought back to San Francisco to eventually be installed on another ship.

When we had completed what salvage work we thought feasible, we left the *Klamath* breaking up badly and being chewed to pieces on the rocks. We had to walk to Point Arena, about twenty miles, and next day we were picked up by a mail stage and taken to Fort Bragg. Here we caught the narrow gauge steam train through the woods to Willits and eventually to Sausalito, the end of the line. We then went by ferry boat to the Ferry building late that night to be greeted by officials of the McCormick Steamship Company and the wives and loved ones of those who were lucky to have family welcoming them home.

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The Steam Schooner Multnomah (call sign WMA) shown here is almost identical to the Klamath. The Klamath of 1038 tons was built in 1910, whereas the Multnomah was launched two years later. These steam schooners often became the first assignment of many a fledging wireless operator. The Multnomah was the first of 42 ships to be built during the succeeding 15 years. Charles R. McCormick started his fleet with the sailing of the Steam Schooner "Cascade"

Status of ARRL RRI Cooperation
By James Wades (WB8SIW)

The signing of the recent Memorandum of Understanding between the ARRL and RRI shows real promise. Over the past few months, cooperation has been excellent with both organizations working closely to harmonize a variety of procedures and policies. Some of the results of this cooperation have been covered already in the "NTS Letter" published monthly by the ARRL. Some of these developments can be summarized as follows:

ARL/RRC Numbered Radiogram Texts:

The ARRL and RRI have harmonized the new list of ARL Numbered Radiogram Texts. This new, expanded list of numbered radiogram texts is backward compatible with the long-standing, older list widely published via various sources over many years. However, the updated version contains a variety of new ARL Numbered Radiogram Texts designed to better support the "I Am Safe" program and emergency communications operations.

The latest approved list can be found under the "Publications" heading on the Radio Relay International website at:

https://radiorelay.org/files/reference/ARL_Numbered_Radiogram_Texts.pdf

The identical, updated version is also be available at: https://nts2.arrl.org/numbered-texts/

All RRI/NTS volunteers are encouraged to print out and retain the new list.

New "Certified" Precedence Enters Service:

In the ideal world, the National Traffic System would have sufficient volunteers to facilitate message originations and deliveries at most locations throughout the United States and Canada. However, this is not always the case. Routine radiograms often propagate through the system with minimal delay only to reach their destination section where some are held for days awaiting an "outlet" in the form of a volunteer reasonably close to the addressee who can perform the delivery function.

This situation points to two often conflicting imperatives within the NTS, one of which is the need to keep nets active with sufficient traffic to incentivize volunteer participation, and the other of which is the customer service requirement for timely and accurate delivery of routine radiograms. On one hand, we do not want to starve section and local nets of traffic, but on the other hand, we do not want routine radiograms to sit for days until someone near the addressee checks into a net.

The solution to this problem is a new "certified" precedence. A certified radiogram is a routine radiogram that *prioritizes customer service in the form of timely and accurate delivery* above that of ensuring a message reaches a point as close to its last mile destination as possible. This new precedence recognizes that NTS is in the customer service business. Simply put; in our modern telecommunications environment, those origi-

nating unique, personal radiograms deserve a positive experience in which their message reaches the addressee in a timely manner.

The certified precedence cannot be used for "bulk" messages that often contain a common text, and which are addressed to individuals with whom the originator has no prior relationship. These latter types of messages are not typically time-sensitive and often have incorrect contact information harvested from out-of-date on-line sources. While properly managed bulk originations can prove beneficial by establishing relationships between the local Amateur Radio community and an addressee, they must retain the "routine" precedence, and the goal is to push them through the network to a point as close as possible to the "last mile."

As a general guideline, a "certified" precedence radiogram "expires" 48 hours after its time of origination. Upon expiration, it *must* be delivered to the addressee regardless of its location within the National Traffic System. Furthermore, there are specific requirements for use of the "certified" precedence. For example:

- The originator *shall* have a reasonable expectation that the address, phone number and other contact information contained in the radiogram address has been verified as *both timely and correct* before origination (in other words, address data cannot be harvested from on-line directories or the like).
- The message transmitted must be unique in character.
- The message *shall* be transmitted only as the result of a prior direct relationship or transaction between the originator (signatory) and addressee.

In other words, a Holiday greeting sent to one's family member would be classified as "certified," whereas a "please renew your ham radio license" radiogram sent to a stranger must use the routine precedence.

When originating a "certified" radiogram, the time of origin (in UTC) must be included; this starts the clock ticking down to the 48-hour expiration deadline.

On a related note, in order to ensure accurate and professional-grade management of certified and higher precedence traffic, Radio Relay International has established the "Certified Radio Operator" training program to not just support the certified precedence message traffic, but also to ensure that sufficient expertise is available within the traffic community to manage welfare, priority and emergency precedence messages.

More about the certified precedence as well as the Certified Radio Operator program can be found on the Radio Relay International website.

Handling Instructions (HX)

Another "blast from the past" has been handling instructions. Both RRI and the ARRL NTS2.0 Committee discussed some possible updates to the traditional handling instructions, ultimately developing a new, revised list. This new list clarifies some past confusion, eliminates obsolete references, and adds some new "HX" pertaining to emergency communications functions. See page 20 for a copy of the new list.

Temporary Area Chairs:

Temporary Area Chairs have been appointed by RRI and ARRL to serve until June, 2026 or until which time new chairs are elected. The Area Chair position will be by election and the appointment will be a joint ARRL/RRI appointment. This should return much of the NTS governance closer to the model of the old "Terms of

Refence" that predated the troubles of 2016.

In summary:

So far, everything is progressing on a collegial and cooperative basis, promising a bright future for a modern, effective traffic system.

The Revival of Christmas Radiograms
Raising the Profile of NTS

There was a time, some decades ago, when traffic nets were incredibly busy with holiday radiogram traffic. Even those who rarely, if ever handled message traffic would often originate a holiday radiogram to family and friends separated by distance. This was, of course, during the era of expensive long-distance telephone toll charges and the like. At the time, distance seemed like more of an omnipresent reality in the era before the Internet, Facetime," and instantaneous communications.

It seems that the tradition of sending a Christmas telegram or radiogram should have a nostalgic feel that fits the holiday season well. Therefore, RRI and the ARRL are encouraging radio amateurs to originate a Christmas telegram.

If one hasn't originated a radiogram before, there are some convenient tools, one of which is available via the Winlink forms library and the other of which is an on-line service developed by the ARRL NTS2.0 Committee. Both allow someone who has never sent a radiogram in his life to originate a message to family or friends.

If doing so by Winlink, one can access the interactive RRI radiogram form in the Winlink "Forms Library." The radiogram form is interactive. It walks you through the process of creating a radiogram. It will coach you on the formatting protocol and even correct you if you use unauthorized punctuation or formatting. It's incredibly easy to create a radiogram using the Winlink-RRI form. Once you have completed your radiogram form, you simply send it to the destination region for routing to the last mile and ultimate delivery.

Another option is covered in the next article describing an online "radiogram portal" developed by the NTS2.0 Committee. One fills out an on-line radiogram form, which is then transferred to an NTS volunteer who injects it into the traffic system.

These two easy methods are ideal for those who have never sent a radiogram. Not only is it an opportunity for familiarizing oneself with the radiogram format, but it provides additional training and exercising for RRI and NTS volunteers, all of which translates to improved operational readiness in time of emergency.

Before originating your radiogram, *please make sure you have the correct, up-to-date address information for the recipient*, and because these are routine messages, please limit your text to 25 words or less. One may want to also consider using the ARL Numbered Radiogram Text "ARL Sixty One" or "ARL Sixty Two."

For Christmas radiograms, we are encouraging email or hard-copy delivery. This allows for the use of the new "Christmas Season Radiogram Form 1802." This form has a unique holiday theme layout ideal for delivering Christmas radiograms. The back-side of the radiogram form includes information on Amateur Radio, RRI, and the ARRL, making it an ideal "advertising" tool for the Amateur Radio Service. Please add an op note to your radio-

gram stating “DELIVER ON FORM 1802”

Delivering the message:

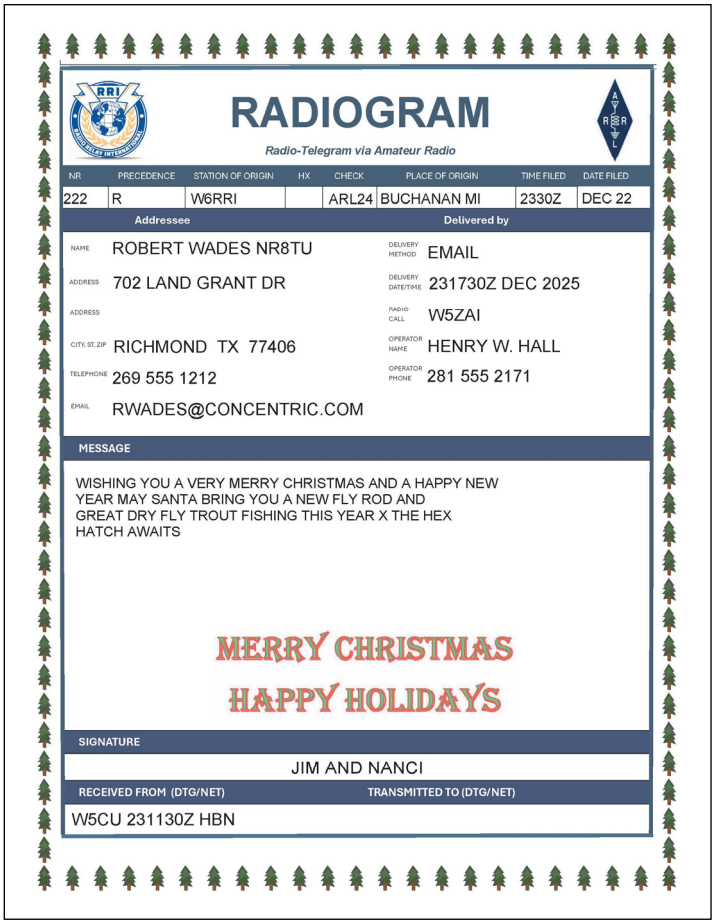
NTS and RRI volunteers delivering these Christmas Radiograms can use form 1802 to provide a quality delivery experience. If delivering via email, simply populate the form and then print it as a PDF. The PDF can then be appended to an email for delivery. The PDF can also be easily converted to a JPEG for delivery via text message.

If delivering via USPS or in person, one should print the Form 1802 radiogram form in color (if possible) and double-sided. This places the information about the Amateur Radio Service on the back of the form. One can then place it in an envelope for mailing or personal delivery.

The importance of public outreach:

Public relations is more important than ever for the Amateur Radio Service. Whether a message is delivered to a third party or to a local radio amateur, this holiday season process allows us to advertise the fact that the Amateur Radio Service is alive and well and active in the community.

Lastly….. We recommend transmitting your Christmas radiogram early. We don’t want our volunteers staying up until midnight on Christmas Eve trying to deliver lots of last-minute radiograms. Try selecting some random days in early to mid December.



RADIOGRAM

Radio-Telegram via Amateur Radio

NR	PRECEDENCE	STATION OF ORIGIN	HX	CHECK	PLACE OF ORIGIN	TIME FILED	DATE FILED
222	R	W6RRI		ARL24	BUCHANAN MI	2330Z	DEC 22

Addressee

NAME ROBERT WADES NR8TU

ADDRESS 702 LAND GRANT DR

ADDRESS

CITY, ST, ZIP RICHMOND TX 77406

TELEPHONE 269 555 1212

EMAIL RWADES@CONCENTRIC.COM

Delivered by

DELIVERY METHOD EMAIL

DELIVERY DATE/TIME 231730Z DEC 2025

RADIO CALL W5ZAI

OPERATOR NAME HENRY W. HALL

OPERATOR PHONE 281 555 2171

MESSAGE

WISHING YOU A VERY MERRY CHRISTMAS AND A HAPPY NEW YEAR MAY SANTA BRING YOU A NEW FLY ROD AND GREAT DRY FLY TROUT FISHING THIS YEAR X THE HEX HATCH AWAITS

MERRY CHRISTMAS

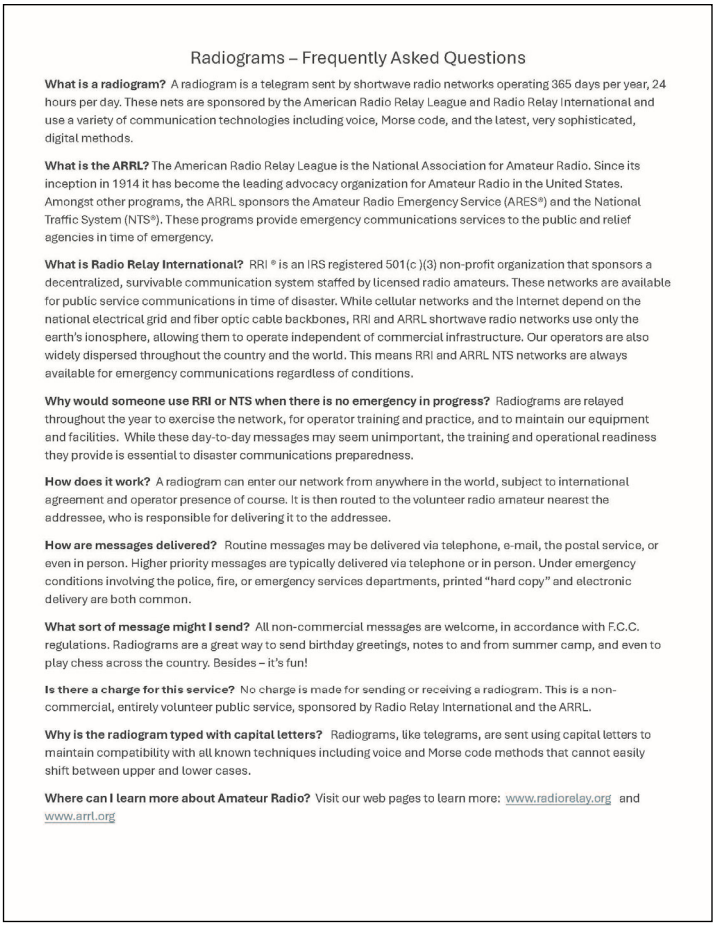
HAPPY HOLIDAYS

SIGNATURE

JIM AND NANCI

RECEIVED FROM (DTG/NET)	TRANSMITTED TO (DTG/NET)
W5CU 231130Z HBN	

A sample Christmas/Holiday Radiogram, RRI Form 1802 formatted for delivery to the addressee. One simply populates the form and prints it as a PDF for delivery.



Radiograms – Frequently Asked Questions

What is a radiogram? A radiogram is a telegram sent by shortwave radio networks operating 365 days per year, 24 hours per day. These nets are sponsored by the American Radio Relay League and Radio Relay International and use a variety of communication technologies including voice, Morse code, and the latest, very sophisticated, digital methods.

What is the ARRL? The American Radio Relay League is the National Association for Amateur Radio. Since its inception in 1914 it has become the leading advocacy organization for Amateur Radio in the United States. Amongst other programs, the ARRL sponsors the Amateur Radio Emergency Service (ARES®) and the National Traffic System (NTS®). These programs provide emergency communications services to the public and relief agencies in time of emergency.

What is Radio Relay International? RRI ® is an IRS registered 501(c)(3) non-profit organization that sponsors a decentralized, survivable communication system staffed by licensed radio amateurs. These networks are available for public service communications in time of disaster. While cellular networks and the Internet depend on the national electrical grid and fiber optic cable backbones, RRI and ARRL shortwave radio networks use only the earth’s ionosphere, allowing them to operate independent of commercial infrastructure. Our operators are also widely dispersed throughout the country and the world. This means RRI and ARRL NTS networks are always available for emergency communications regardless of conditions.

Why would someone use RRI or NTS when there is no emergency in progress? Radiograms are relayed throughout the year to exercise the network, for operator training and practice, and to maintain our equipment and facilities. While these day-to-day messages may seem unimportant, the training and operational readiness they provide is essential to disaster communications preparedness.

How does it work? A radiogram can enter our network from anywhere in the world, subject to international agreement and operator presence of course. It is then routed to the volunteer radio amateur nearest the addressee, who is responsible for delivering it to the addressee.

How are messages delivered? Routine messages may be delivered via telephone, e-mail, the postal service, or even in person. Higher priority messages are typically delivered via telephone or in person. Under emergency conditions involving the police, fire, or emergency services departments, printed “hard copy” and electronic delivery are both common.

What sort of message might I send? All non-commercial messages are welcome, in accordance with F.C.C. regulations. Radiograms are a great way to send birthday greetings, notes to and from summer camp, and even to play chess across the country. Besides – it’s fun!

Is there a charge for this service? No charge is made for sending or receiving a radiogram. This is a non-commercial, entirely volunteer public service, sponsored by Radio Relay International and the ARRL.

Why is the radiogram typed with capital letters? Radiograms, like telegrams, are sent using capital letters to maintain compatibility with all known techniques including voice and Morse code methods that cannot easily shift between upper and lower cases.

Where can I learn more about Amateur Radio? Visit our web pages to learn more: www.radiorelay.org and www.arrl.org

The back side of the radiogram form explains Amateur Radio public service communications and invites the addressee to visit the RRI and ARRL websites to learn more about ham radio.

The Radiogram Portal

Raising the Profile of NTS

By Marcia Forde (KW1U)

The Radiogram Portal is a web-based tool for accepting third party message traffic to be relayed through the National Traffic System. It is intended to introduce the public to the amateur radio messaging service, and to offer them an opportunity to compose an actual radiogram which could then be picked up by an authorized traffic handler and originated as a formal message onto a traffic net or the digital traffic network. The aim is to encourage more true third-party traffic into the network, enabling traffic handlers to practice their skills in message handling and to keep the networks viable.

This effort was a dream of the Access and Delivery Team of the NTS2 revitalization project, and the software was developed by Jonathan Taylor, K1RFD, author of Echolink. This program has been successfully operating since late 2023 with occasional updates and additions as suggested by its users, and it has been growing in popularity.

Public facing page:

To access the Portal, go to https://nts2.arrl.org/radiogram/. Following a brief description, a fillable form allows one to enter their name, email address and zip code followed by the addressee delivery information. One then has an option to choose from a list of standardized radiogram texts or enter a free form text. The software will convert that information into radiogram format, which the originator then has an option to view. The radiogram is then stored in a database for retrieval by an authorized “radiogrammer.”

To retrieve a message and enter it into the network, a traffic handler must first apply to be authorized as a “radiogrammer.” He/she mus have a knowledge of the traffic system and experience in handling formal message traffic. Information on becoming a “radiogrammer” can be found at:

https://nts2.arrl.org/radiogram-portal-quick-start/.

Once approved, a “radiogrammer” checks the database for available messages, chooses one to handle, enters their call sign and their message number and submits. They then become the “station of origin” handling a third party message and are responsible for moving that message on its way to destination. The database will indicate that the message is being handled so it cannot be picked up by someone else. Once that message is sent the “radiogrammer” returns to the database and marks the message as sent. Incidentally, that message can be counted on a Station Activity Report (SAR) as a third-party ”origination”.

It is important to note that it is not necessary to be a “radiogrammer” to use the Portal. Anyone is welcome to send a message. Can’t find a net? Not able to get into a net? On the go and not available at net time? Not familiar with how to navigate the traffic nets? The Portal is available 24/7. In fact, all are encouraged to spread the word to clubs, ARES groups and others.

Over 100 “radiogrammers” are waiting to handle a message. Give it a try.

UMFK's Jamaican students find hope in a phone call home after Hurricane Melissa

FORT KENT, Maine (WAGM) - For most college students, life is filled classes, assignments, and exams. But for some at the University of Maine at Fort Kent, that routine has been shaken by a natural disaster over a thousand of miles away.

According to the UMFK's Dean of Students, Tom Doyle, roughly ten percent of the university's on-campus student population is from Jamaica. After Hurricane Melissa tore through the island, many students here have struggled to hear from loved ones back home.

"Some of them are still looking for family members. Others have lost family members. Some students' houses are completely gone and they are about two-thirds of a way through a semester. So they still have homework and class-work," says Doyle.

The school is helping by providing warm clothing, hot meals, counseling, and free rooms during breaks. However, Doyle says what many needed most was simply a phone call home.

"The athlete director was really gracious as well as our director of housing. We opened up phone lines that we had available because many of our students communicate with home via apps like WhatsApp because a simple cell-phone call is prohibitively expensive to call Jamaica or for folks from Jamaica to call them here," says Doyle.

After the Hurricane, more than 70 percent of Jamaica was left without power — causing major communication out-ages. With many areas offline, families often had to travel just to find a signal or a phone line. Some students waited with no word back from family.

"I pretty much used that Amateur Radio Emergency Service that and the traffic systems that we use both through the ARRL which is [American] Radio Relay League and then the RRI which is Radio Relay International and we got some international contacts - well Puerto Rico," says Derrick Ouellette who is the Maine Section Emergency Coordi-nator for the ARRL.

From Puerto Rico, the contact there was able to use his radio to get in touch with people in Jamaica and connect Ouellette with officials from the Jamaican equivalent of the emergency management Agency. Within hours, direct phone numbers and email addresses were shared with Aroostook UMFK — giving families and students a way to check in from over a thousand of miles away.

"As I understand it they were able to make some contact and get in communication with their family and at least check on their loved ones," says Ouellette.

For many students, that first call home brought relief and helped bridge the distance between Fort Kent and Jamai-ca.

HXA Delivery by email and/or text message preferred.

HXB Cancel message if not delivered within ____ hours of filing time; service originating station.

HXC Delivering station report date and time of delivery (TOD) to originating station. If received directly on the air by the addressee, then the addressee is responsible for the reply.

HXD All stations handling this message report to originating station the identity of station from which received, plus date and time. Report identity of station to which relayed, plus date and time, or if delivered report date, time and method of delivery. During disasters or periods of high demand on circuit capacity, avoid using this instruction.

HXE Delivering station get reply from addressee, originate message back. If received directly on the air by the addressee, then the addressee is responsible for the reply.

HXF Hold delivery until _____ (date).

HXG If postage or other expense involved, may cancel message and service originating station.

HXI Please deliver as a radiogram-ICS-213 message.

HXR Please confirm that the addressee has read the message and reply to originator. Reserved for Emergency, Priority and Certified precedence messages.

HXT Special traffic test message, ID _____.

QNI NEWSLETTER

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A Traffic Operator's Newsletter

QNI is published quarterly…or more often when the Editor feels like it!

The Case for Common Denominator Modes

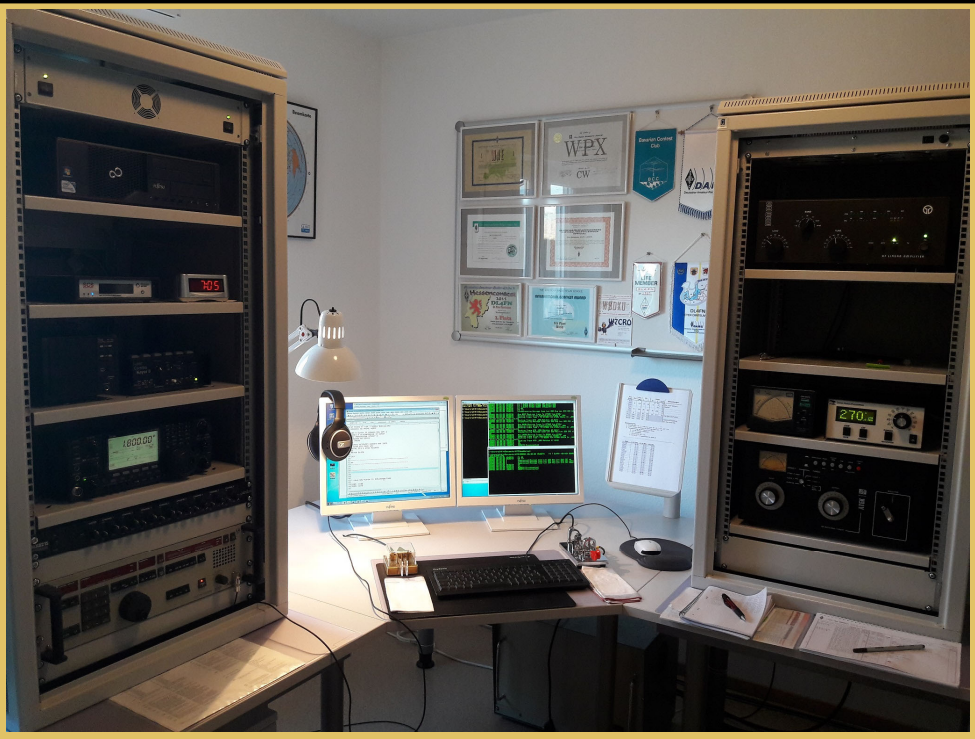
Digital modes have proven very useful in the Amateur Radio emergency communications environment. Networks that offer a degree of automation, such as Winlink and the RRI Digital Traffic Network offer a hybrid approach that serves as an excellent force multiplier, allowing a smaller pool of better trained radio operators to support a significant emergency event. **However, digital methods are not the only tool in the EmComm tool box**.

Consider voice communications. Walk into any ham shack in the world, and the odds are quite good that one will find a transceiver and a microphone. Likewise, simple portable transceiver, a microphone or key, a few batteries, and a chunk of wire are all that's required to establish communications from a disaster area.

Certainly, voice methods do not always provide the circuit capacity needed for high volumes of traffic, but they do provide almost universal accessibility. CW methods offer somewhat higher circuit capacity than voice methods, provided one has the necessary Morse skills.

Any effective EmComm program should treat basic voice skills as an essential capability. Part of the value proposition for the Amateur Radio Service is the fact that ham radio operators are decentralized and already dispersed in a typical disaster area, but not every ham is equipped for Winlink or DTN. As happened during the aftermath of Hurricane Maria, thousands of message were exchanged not by the ARRL team of "50," but buy a team of ad-hoc volunteers using basic HF-SSB methods, supported by operators, many of whom had traffic handling experience, such as RRI Board member Jeff Miller (WB8WKQ—SK), who handled over 2000 messages out of Puerto Rico.

Send us a photo of your shack



The shack at DL4FN