

Hams – an Indispensable Element of any Disaster Team

Hams, or Radio Amateurs, as they like to be called, are people - both men and women – from every walk of life with one thing in common – they have a passion radio communication.

There are over 45,000 Hams in Canada, and over 4000 of them reside right here in the Maritimes.

Hams are often associated with communication that uses Morse code – a system of dots and dashes. You may have heard that Morse code is no longer being used as a method of communication aboard commercial ships or our Canadian Navy vessels, and with the sophistication of modern radio communications – cell and satellite phones – one might justifiably ask the question: “What can Hams do that the average person on the street of Halifax can’t do when it comes to radio communication?” After all, Hams just use Morse code to communicate, don’t they? If that is what you think, then perhaps you should read on.

To give you a sense of how important a role Hams can, and indeed do play in a modern-day disaster, the following is an excerpt from a piece that was recently published in the *Christian Science Monitor* by Barbara W. Carlson following the disaster that hurricane Katrina brought to the southern United States.

Richard Webb, an amateur radio operator, was asleep on his air mattress at University Hospital in New Orleans during the aftermath of hurricane Katrina when he was awakened at 5 a.m. by a hospital administrator.

As Mr. Webb tells it, "He told me we had a lady who was in labour, who had swum five blocks in that dirty, nasty water to the hospital because she saw lights there - people with flashlights moving around." Medical personnel said the baby needed to be delivered by caesarean section. But the hospital had limited power, no running water, no way to sterilize instruments, no way to perform such surgery. "We figured we had two hours to get her medevacked out of there" before the lives of mother and child would be in danger. "So I got on the radio and was talking to a fellow who was with the Coast Guard auxiliary in Cleveland, Ohio. I was able to work through him to arrange a medevac."

The choppers did arrive in time, Webb says. The woman and another patient in need were evacuated successfully.

Webb, who lived in nearby Slidell, La., had been summoned to his hurricane post by the



Hams set up a complete mobile radio station in the wilderness during the annual Emergency Preparedness exercises.

hospital's head of emergency management. He's one of about 750 amateur radio operators, or "hams," who have been in and out of the five hurricane states since day one: Louisiana, Mississippi, Alabama, and parts of northern Florida and Texas, where evacuees are taking shelter. At least a thousand other hams throughout the nation have also been involved in some way, relaying messages or assigning hams to various locations. They're all volunteers, all unpaid, and they do what they do because they want to. They train for disaster work; their FCC radio licenses mandate public service.

Hams are trained in emergency communication and they see public service as an important part of their hobby. Here in the Halifax Regional Municipality (HRM), we are fortunate to have over 60 Hams that have taken formal emergency communication training and are now able and prepared to respond day or night to any emergency that requires their assistance.

The relationship that has developed over the past ten years between local Hams and the Emergency Measures Organization here in Nova Scotia is a model that others are looking at to adopt.

There is no question that the latest in satellite and cell phone technologies, the relatively inexpensive Family Service Radios, and the new province-wide 800 MHz trunked communication system that is now being used by all emergency

responders in Nova Scotia – police, fire and ambulance – make communicating during an emergency much easier than it was even seven or eight years ago. However, with each disaster situation it has become increasingly clear that during the early stages of most large-scale emergencies, power and normal phone communication are interrupted, and then cell sites quickly become overloaded and crash, leaving a huge gap the emergency communication capability.

Here in Nova Scotia on September 2nd 1998 Swiss Air flight #111 circled out over St. Margaret's Bay west of Halifax dumping fuel as the plane filled with acrid smoke from burning insulation. It then pluned into the Atlantic south-east of Peggy's Cove. At that time, the Coast Guard, the Navy, local fishermen, rural fire fighters, RCMP, and ambulance personnel all used different radio systems, operating on different VHF frequencies. Although all were of necessity involved in the early search and rescue efforts off of Peggy's Cove, none had the technological capability of talking with the other



Hams operating from a remote mobile radio station talk with colleagues all over North America.

groups. Fortunately, Amateur Radio operators were quickly on the scene. They set up radio links back to Halifax, and to the temporary morgue that was established at the Shearwater Naval Air Station. And with equipment that they quickly modified to allow for communication with all of the S&R agencies, Hams proved extremely helpful in the early stages of this event.

Again in 2001, when the twin towers of the World Trade Centre in New York were attacked, and over 70 commercial aircraft loaded with shocked passengers were forced to land unexpectedly in Halifax, Amateur Radio operators were immediately involved. Hams from as far away as Bridgewater and Truro joined their colleagues from Metro to assist with emergency radio communication. Together, they worked for over three days out of the Emergency Operation Centre (EOC) in Dartmouth and out of each of the



The Mobile Repeater Trailer in action.

temporary reception shelters that were set up to house the stranded passengers. During this time, they provided the communication link between the various remote sites around the Metro area, and the EOC in Dartmouth.

While it is true that in 2005 we now have a very robust 800 MHz communications system in Nova Scotia that has the capability of tying all of the responding emergency services together, the loss of this one system during an emergency – even for a short period of time – would be catastrophic. Should a major power failure occur – such as during hurricane Juan or White Juan – and emergency power was not sufficient to sustain the 800 MHz system, Hams would be the only viable backup.

Hams and their radios are highly versatile. By using different frequencies, each with a different propagation characteristic, Hams are able to communicate locally, regionally, nationally and around the world.

The radio frequencies that are typically used for local radio communication – VHF & UHF – basically provide line-of-site communication capability. To get around this problem, Hams employ repeaters located on high points of land to extend the communication “footprint” of their radios, literally allowing two radios on opposite sides of a hill to talk with one another by going through the repeater at the top of the hill,

because these radio waves will not travel through the hill itself. Working with the EMO in Halifax, Hams have built and maintain a mobile repeater trailer that can be moved on

short notice to any site during an emergency in order to extend the capability of both Ham radios and the Provincial 800 MHz trunked radio system.



Hams mount additional antennas on the Eric Spicer Building roof during a simulated emergency.

Often the spoken word is not the most efficient way to communicate. Voice communication is fine for “tactical messaging”, where short, succinct and rapid transmissions are essential. But when long and complex messages must be passed, or hard copies of messages are required for auditing purposes, it is important to have the capability of sending written messages. Hams have been on the cutting edge of digital radio technology as well, and there is now a comprehensive system that uses the Ham radio bands to transmit messages that are composed on a computer using normal email software that one would use at work or at home.

However, instead of relying solely on the

internet to get the message through – What if the internet were to be incapacitated either locally or globally during a disaster?” – Hams use radio signals to carry the message from a mobile field station back to a disaster control centre. Neil Hughes – VE1YZ – a local Ham has been a pioneer in the development and testing of the WinLink 2000 system right here in Nova Scotia.

Yes, Hams literally are “at the cutting edge of radio communication technology”, and as the Christian Science Monitor said: “Hams are volunteers. When they set sail for disasters, they pay their own way. Sometimes employers give them a paid leave or reimburse expenses. While Hams’ sacrifices are real, the rewards are often intangible.”



Neil Hughes’ WinLink 2000 Portable Station

