

### **What are the major Amateur Radio emergency organizations in Canada?**

At the local level, Radio Amateurs may participate in local emergency organizations, or organize local "traffic nets" using VHF (very high frequencies) and UHF (ultra high frequencies). They may operate through the Amateur Radio Emergency Service (ARES) or the National Traffic System (NTS). These are coordinated through Radio Amateurs of Canada (RAC) as extensions of ARES and NTS in the United States. In areas that are prone to tornadoes and hurricanes, many Radio Amateurs are involved in CANWARN, operating under Environment Canada.

### **Is Amateur Radio recognized as a resource by national relief organizations?**

Most ARES groups have formal agreements with their local municipalities and are included in the municipal Emergency Plan, for callout in an emergency. The Canadian Red Cross, as the lead relief agency, coordinates support for the other relief agencies, and has a formal agreement with RAC for ARES across Canada.

### **What are some examples of recent emergencies involving Amateur Radio in North America?**

All of the following involved amateur radio in a major radio communications assistance role, when conventional and cell phone systems were unable to cope: The great Northeast power blackout (2003); the huge forest fires in BC and the western USA (2002, 2003), the World Trade Center and Pentagon attacks and the crash of the commandeered aircraft in Pennsylvania (2001); and "The Great Ice Storm" in ON, NY, QC, VT, NH, NB, ME (1998).

### **If my loved ones are in a disaster area, can I use Amateur Radio to contact them?**

Radio Amateurs in a disaster area usually are very busy helping with immediate relief problems. It is difficult to contact loved ones in a disaster area via Amateur Radio. Since Amateurs in the disaster area may be called upon to assist local emergency officials, you should wait until the immediate crisis has passed and restoration efforts have begun. At that time, local Amateurs may begin handling what is known as "welfare traffic." If you know a nearby Amateur in your community, he or she may be able to send a message into a traffic net that can then relay it to the affected site. The message should be brief (e.g. "Fred, We're worried. Call home. Mother"), with the addressee's name, address and phone number. Once received at the disaster site, your message may take considerable time to reach the addressee. Amateurs there may have no way of reaching your loved ones because of road blockages, or outages in local telephone service. Do not pester your nearby Amateur to see if your message has been delivered. They have no way of knowing, and may be handling hundreds of such messages.

### **Can I use Amateur Radio to get word out of a disaster area to loved ones?**

Yes, but the first rule is *Have patience*. When disaster strikes, all lines of communication, including Amateur Radio, are overloaded. Amateur Radio operators in the disaster area must give priority to supporting local safety and relief efforts. When the immediate danger has passed, most provide "welfare" communication traffic for local residents unable to reach a telephone. If you are in an

affected area, locate an Amateur Radio station (often identified by a sign or banner) and leave a very brief message (e.g. "All is well here. Love, John") with the address and telephone number for your loved ones outside the disaster area. The Radio Amateur will put your message in line as part of the daily net "traffic", and it will be relayed to the area where your loved ones live. An Amateur there may then deliver your message by telephone, but don't expect that Amateur to incur long-distance charges to deliver your message.

### **How can Amateur Radio help with news gathering during or after a disaster?**

During a disaster, media representatives sometimes use Amateur Radio as a source of information and news stories about conditions in the affected region. Many Radio Amateurs are willing to provide interviews with reporters concerning information from the disaster site. In addition, reporters may wish to develop stories on Amateur Radio's role in disaster relief e.g. handling "welfare" messages out of the disaster site.

Amateur Radio must not be used to assist the news media in gathering information when telephones or other commercial means of communication are available. Radio Amateurs are permitted to assist reporters to gather information to be relayed to the public from areas where normal communications have been disrupted. Amateur Radio may not be used for active news-gathering or program production. It is not legal for a reporter to use Amateur Radio in a professional capacity to interview someone in another location. The Amateur may ask questions, or relay media questions to Radio Amateurs in the area. This is particularly so, when the information involves the safety of individuals, and no other channels of communication are available. The questions and responses may be recorded for broadcast. Radio and television broadcasts may not be retransmitted by Amateur Radio.

### **Are there Amateur Radio events during the year?**

Various radio contests involving Canadian radio amateurs are held throughout the year. Most important of these is known as Field Day. This is a specialized contest on the last full weekend of June, with the emphasis on emergency conditions. Operation from tents, using temporary antennas and generator or battery power add to the realism, and complicate contest operations in all modes.

### **How can I learn more about Amateur Radio?**

RAC publishes study guides and The RAC Operating Manual, available on-line from RAC or some radio stores. Browse the RAC web site. Best of all, talk to an Amateur. There is probably an Amateur Radio club near you that will be pleased to learn of your interest. Many clubs teach Amateur Radio classes.



## *What is Amateur Radio?*

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### **What is Amateur Radio?**

At the scene of a traffic accident on a Toronto freeway, a Radio Amateur calls for help, using a palm-sized hand-held radio. A school teacher in Nova Scotia makes friends over the radio with another Radio Amateur in New Zealand. A British Columbia teenager uses her computer to upload a chess move through her radio set to an orbiting space satellite, where it is retrieved by a fellow chess fan in Florida. A truck driver in Alberta swaps call signs with hams in 100 countries during a single weekend "DX Contest". In Quebec, Radio Amateurs save lives as part of an emergency communications network. This unique mix of fun, convenience and public service is what distinguishes Amateur Radio. Although people get involved in Amateur Radio for many reasons, they all have in common a basic knowledge of radio technology, regulations and operating principles. All have passed an examination leading to a licence to operate on the "Amateur Bands." These frequency bands are reserved for use by Radio Amateurs at intervals from just above the AM broadcast band all the way up through the microwave frequencies.

### **How is Amateur Radio different from Citizens' Band Radio?**

Amateur Radio requires a licence and proven technical and operating skills. Unlicensed CB is legally limited to voice operation over low powered equipment on a single frequency band. Amateur Radio may involve voice, Morse code, computer data, or television modes on any of a number of bands, either direct or via repeater stations or earth-orbiting satellites, and may use considerable transmitter power and directional antenna systems.

### **Who is the typical Amateur Radio operator?**

Amateur Radio operators come from all walks of life - entertainers, missionaries, doctors, lawyers, ministers, politicians, and ordinary students, workers, shut-ins and retired folks. They are all ages, sexes, income levels and nationalities. Some prefer Morse code on an old brass telegraph key through a low-power transmitter. Others like voice communication on a hand-held radio. Many transmit computer messages through satellites. They all have an interest in what's happening in the world, and they use radio to reach out to communicate with their fellow Radio Amateurs.

### **What is the appeal of Amateur Radio?**

Some Radio Amateurs are attracted by the ability to communicate across the country, around the globe, and even with astronauts on space missions. Others build and experiment with electronics. Computer hobbyists find the digital modes to be a low-cost way to expand their ability to communicate. Those with a competitive streak enjoy "DX contests" where the object is to see how many distant Radio Amateurs they can contact. Some like the convenience of a technology that gives them portable communication. Others use it to open the door to new friendships over the air, or through participation in an Amateur Radio club. Many combine Amateur Radio with the internet in various ways.

### **What Are the "Amateur Bands"?**

Look at the dial on an old AM radio and you'll see frequencies marked from 540 to 1600 kilohertz. Imagine that dial extended out many thousands of kilohertz, and you'll have some idea of how much additional radio spectrum is available for amateur,

government and commercial radio bands. It is here you'll find aircraft, ship, fire and police communication, as well as the worldwide "shortwave" commercial and government broadcast stations. Amateurs are allocated nine basic "bands" (i.e. groups of frequencies) in the High Frequency (HF) range between 1800 and 29,700 kilohertz, and another seven bands in the Very High Frequency (VHF) bands and Ultra High Frequency (UHF) ranges. There are also Super High Frequency (SHF) or microwave bands. Even though Amateur Radio conversations may be heard around the world by anyone with a suitable radio receiver, given the right frequency and propagation conditions, Amateur Radio is basically two-way communication between Radio Amateurs.

### **Why do Radio Amateurs call themselves "Hams"?**

Many Radio Amateurs do not favour the term "ham". Although the origin of the term is obscure, there are several pet theories. One holds that early amateurs were called hams because they liked to perform, or "ham it up" on the air. Another proposes that the name came from the "ham-fisted" way some early amateurs handled their Morse keys. Another holds that "ham" is an acronym from the initials of three college students who were among the first Radio Amateurs. Perhaps the easiest to accept is that "ham" is derived from "Am," a contraction of "Amateur."

### **What is the history of Amateur Radio in Canada?**

Amateur Radio is as old as the history of radio itself. Not long after Marconi transmitted the Morse code letter "S" from Poldhu in Wales to St. John's, Newfoundland in 1901, many amateur radio experimenters throughout the world were trying out the capabilities of the first "spark gap" transmitters. To control interference to government shore stations, Parliament passed the Radiotelegraph Act in 1913. In 1914 the Minister of the Naval Service issued the Radiotelegraph Regulations, prescribing the first operating and technical proficiency examinations for Amateur Radio operators in Canada. By then, amateur experimenters were communicating across long distances. Using networks of stations, communication could be extended nation-wide. Under administration by various government departments, Amateur Radio grew in Canada to its present form with over 50,000 station licences.

### **Why Do Radio Amateurs require a licence?**

Although the main purpose of Amateur Radio is recreation, it is called the "Amateur Radio Service" because it also has a serious face. The government created this "Service" partly to fill the need for a pool of experts who could provide communications in times of emergency or war. In addition, the government acknowledged the ability of Amateur Radio to advance communication and technical skills, and to enhance international goodwill. Proof of operating and technical proficiency of amateur radio operators has been required in Canada since 1914. This philosophy has paid off. Countless lives have been saved when skilled hobbyists acted as emergency communicators to render aid during or following a hurricane, tornado, ice storm, earthquake or other disaster.

### **How are Amateur Radio operators licensed in Canada?**

Amateur Radio is presently regulated by Industry Canada under the Radiocommunication Act and Regulations. It is also subject to numerous international agreements. All Amateur Radio stations

must be licensed. In Canada there is only one class of station licence - an Amateur Radio Operator Certificate with at least one of these three Qualifications:

*The Basic Qualification* - The Basic Qualification is the entry-level and does not require any Morse code test. To earn the Basic Qualification requires passing an examination totaling 100 questions on radio theory, regulations and operating practices. The Basic Qualification gives access to all Amateur Radio bands above 30 megahertz, in all modes.

*The Morse Code Qualification* - To earn this Qualification, one must pass a 5 Words Per Minute sending and receiving Morse code test. The 5 WPM Qualification added to the Basic Qualification on the Amateur Radio Operator Certificate grants the holder access to the HF (shortwave) bands (1.8 – 30 MHz) in all modes permitted on those respective bands.

*The Advanced Qualification* - To earn the Advanced Qualification requires passing an examination totaling 50 questions on advanced radio theory. The Advanced Qualification added to the Basic Qualification on the Amateur Radio Operator Certificate permits the holder to build transmitting equipment, operate high-powered transmitters, and to sponsor a voice repeater or club station.

The Qualification examinations may be taken in any order. Once a Qualification has been earned, it is good for life. The "entry level" Basic Qualification gives access to frequencies in the VHF, UHF and microwave bands using all modes of operation, including access to Orbiting Satellites Carrying Amateur Radio (OSCARs) which opens up space and world-wide communication. The other Qualifications may be earned to achieve access to additional bands, transmitter power levels and privileges, as noted above. Radio Amateurs usually carry their wallet-card certificates with them so they can operate wherever they go. Typically, they also post a copy in their radio station at home.

### **What do Amateur Radio operators do during and after disasters?**

Amateur Radio operators are most likely to be active after disasters that damage regular lines of communications due to power outages and destruction of telephone lines. They may set up and operate local and long-distance communication networks, as backup for failed or overloaded government and emergency networks. They may also provide non-commercial communication for both private citizens affected by the disaster, and their worried families and friends outside the disaster area.

### **How do Amateur Radio operators help local officials?**

Many Radio Amateurs are active as communications volunteers providing backup communications for their local public safety organizations. In some disasters, coordinated radio communications among public safety or relief officials fails, when radio towers or other elements in the normal communications infrastructure are damaged. Radio Amateurs may be able to help coordinate such communication using their technical skills and their own portable or mobile radio equipment.