# Amateur Radio Emergency Service (ARES) and Auxiliary Communications (AUXCOMM)

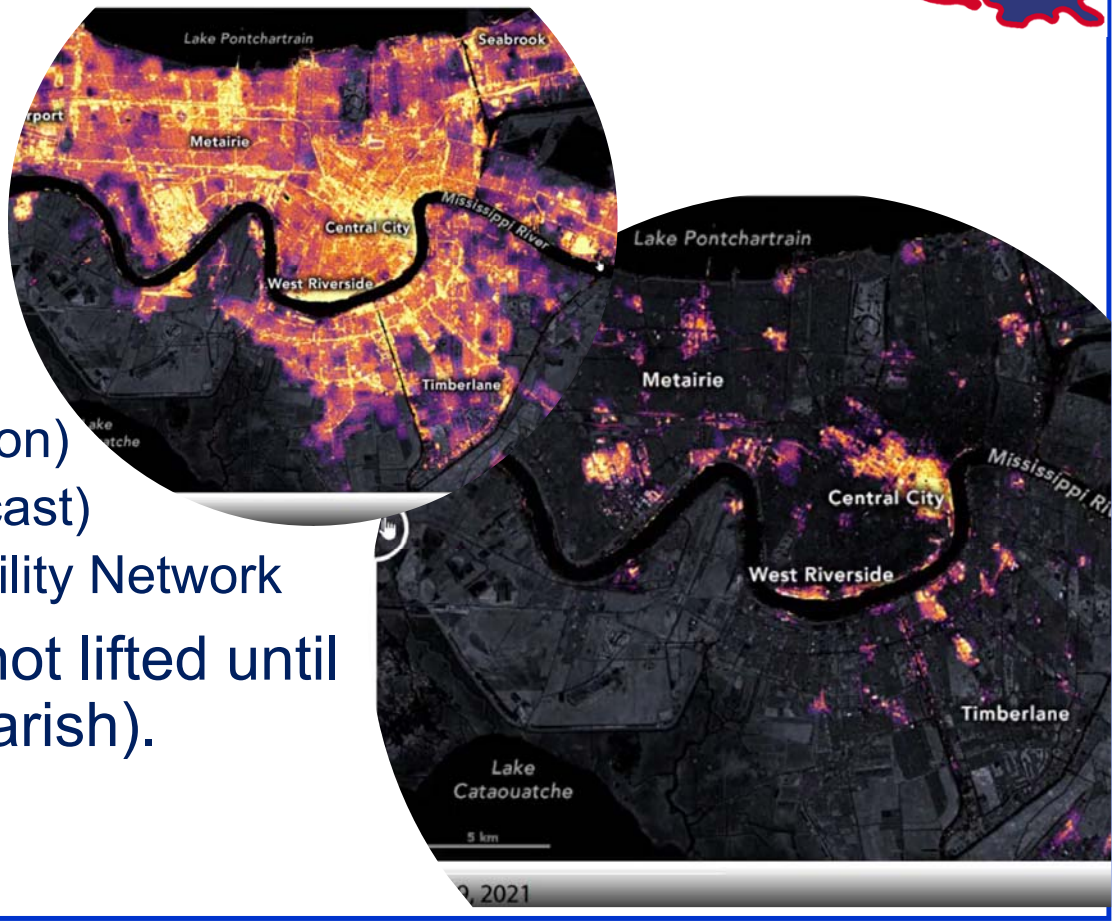
# Agenda

- Auxiliary Communications (AUXCOMM) in the Incident Command System
- Amateur Radio, the Amateur Radio Relay League (ARRL), and the Amateur Radio Emergency Service
- Other Services within AUXCOMM
- Resources and References
- Questions and Answers

# Hurricane Ida

# Hurricane Ida

- Landfall on 29 August 2021
- Widespread power outages
- Massive network outages
  - New Orleans 9-1-1 system
  - Wireless networks (AT&T/Verizon)
  - Land-line telecom (AT&T/Comcast)
  - Louisiana Wireless Interoperability Network
- Mandatory evacuation order not lifted until 13 September (Terrebonne Parish).



## INTERNET SERVICE UPDATE: COMCAST

Comcast has been working around the clock to support restoration efforts since Hurricane Ida devastated Houma and LaPlace. Comcast must work closely with power companies throughout the process, because emergency management procedures dictate that power must be restored first and Comcast must receive clearance that it is safe for our crews to begin restoration work.

Currently, Comcast is working to bring Xfinity services back to its customers residing at the following locations in the next 72 hours.

- West Park and Rhett Street
- West Main Street and Martin Luther King Boulevard
- West Park and Funderburk Avenue
- Alma Street and Douglas Drive

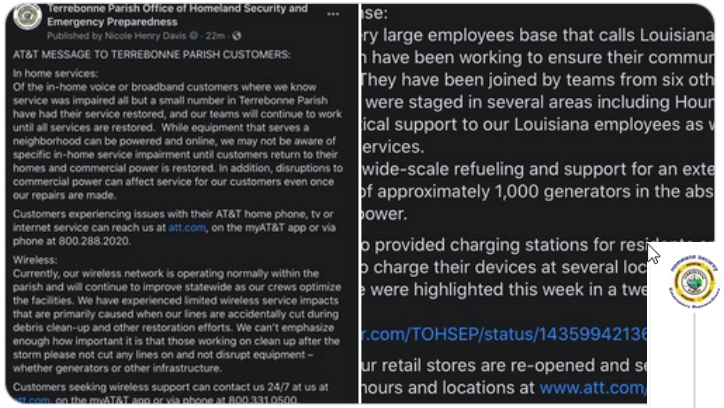
There may be some instances where access to the customer's home is compromised, or the equipment in a particular home is damaged. We will need to address these situations on an individual basis.

Additionally, Comcast is working to restore Xfinity services at the following locations by September 24. Again, restoration will depend on the status of the technology at the home, and our access to the dwelling.

- West Park and Highway 90
- Burma Road and Bayou Blue Bypass
- West Main Street and Highway 3185
- West Park and Percy Brown Road
- West Park and Duet Street
- West Park and Harding Drive
- Alma Drive and Prevost Drive
- West Park and Highland

**Terrebonne OHSEP** @TOHSEP · Sep 20, 2021

AT&T MESSAGE TO TERREBONNE PARISH CUSTOMERS:

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**Terrebonne OHSEP** @TOHSEP · Sep 17, 2021

Entergy sincerely apologizes for the oversight.
Here is the additional info that was not included in the 8am report.

Yesterday (9/16), we repaired 237 poles, 642 spans of down wire, & 193 pieces of damaged equipment. More than 800 plus man hours yesterday.


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**Terrebonne OHSEP** @TOHSEP · Sep 17, 2021

To date, we have repaired 2,453 poles (64%), 4,637 spans of down wire (88%), and 2,506 pieces of damaged equipment (44%).

As of this morning, we have restored power to 22,229 that's an additional 321 customers in Terrebonne Parish. That's approximately 81% of the Parish.

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# What is your plan when all else fails?

Does your ICS plan include Auxiliary Communications?

# Auxiliary Communications (AUXCOMM) in the Incident Command System

# AUXCOMM

- Auxiliary Communications (AUXCOMM) is an all-inclusive term used to describe the many organizations that provide various types of communications support to emergency management, public safety, and other government agencies or describes the services themselves. This includes, but is not limited to amateur radio, military radio, citizens band radio (CB), etc.
- AUXCOMM covers a broad range of systems that could potentially be used by an Auxiliary Communicator (AUXC) during an incident to include High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), satellite communications (SATCOM), microwave, Wi-Fi, digital, video, photos, Voice over Internet Protocol (VoIP), and other modes.

# AUXCOMM

- AUXC: Both the person (Auxiliary Communicator) and the Incident Command System (ICS) position used to provide auxiliary communications. Trained Auxiliary Communicators (AUXC) are a valuable communications resource tool that can be used by local, county, regional, tribal or state agencies/organizations.
- Reports to the Incident Communications Center Manager (INCM) or the Communications Unit Leader (COML) and works in the Logistics functional area.

# AUXCOMM

- The GOHSEP AUXCOMM group in Baton Rouge provides or supplements communications during emergencies when normal networks have sustained damage or become overloaded. This group may be used in a wide variety of situations, including natural and technological disasters.
- The radio equipment, located at the State Emergency Operations Center in Baton Rouge, is normally staffed by volunteers during critical events and provides full interoperable communications with federal, state, and local agencies using amateur, commercial and federal radio frequencies.

# Auxiliary Communicators (AUXCs): Who are they?

# AUXC

- Trusted agents vetted and evaluated by the Authority Having Jurisdiction with demonstrated qualifications and competencies necessary to operate within the AHJs AUXCOMM plan.
- AHJs ultimately responsible for training and evaluating AUXCs needed to support their AUXCOMM plan.
- They could be Amateur Radio Operators, Citizen Band Operators, Radio Emergency Associated Communications Team (REACT) members, anyone with the aptitude, enthusiasm, and/or subject matter expertise in designing, deploying, and operating ad hoc communications systems and networks to meet the agencies needs.

# Amateur Radio Service

# Amateur Radio Service

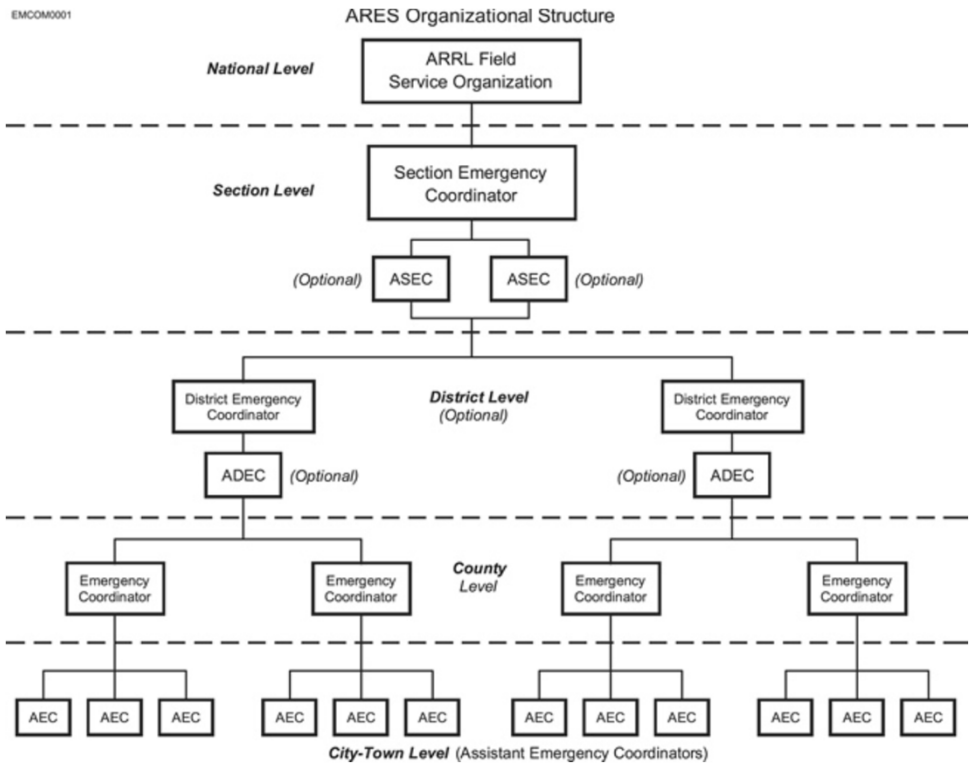
FCC rules, § 97.3(a):

- (1) Amateur operator. A person named in an amateur operator/primary license station grant on the ULS consolidated licensee database to be the control operator of an amateur station.
- (2) Amateur radio services. The amateur service, the amateur-satellite service and the radio amateur civil emergency service.
- (4) Amateur service. A radiocommunication service for the purpose of self-training, intercommunication, and technical investigations carried out by amateurs, that is, duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.
- (5) Amateur station. A station in an amateur radio service consisting of the apparatus necessary for carrying on radiocommunications.
- (38) RACES (radio amateur civil emergency service). A radio service using amateur stations for civil defense communications during periods of local, regional or national civil emergencies.

# Amateur Radio Relay League

# Amateur Radio Emergency Service

- Among the largest and oldest emergency communications groups is ARES, a program sponsored by American Radio Relay League (ARRL) since 1935. ARES is part of ARRL's field organization, which is composed of Sections. Most Sections are entire states, but some larger and more populous states have two or more Sections.



# Amateur Radio Relay League

- The American Radio Relay League is the national association for Amateur Radio in the US. Founded in 1914, ARRL is a noncommercial organization of radio amateurs with a proud history of achievement as the standard-bearer in amateur affairs. ARRL's underpinnings as Amateur Radio's witness, partner and forum are defined by five pillars: Public Service, Advocacy, Education, Technology, and Membership.
- ARRL's Vision Statement
- As the national association for Amateur Radio in the United States, ARRL:
  - Supports the awareness and growth of Amateur Radio worldwide;
  - Advocates for meaningful access to radio spectrum;
  - Strives for every member to get involved, get active, and get on the air;
  - Encourages radio experimentation and, through its members, advances radio technology and education; and
  - Organizes and trains volunteers to serve their communities by providing public service and emergency communications.

# Amateur Radio Emergency Service

# Amateur Radio Emergency Service

- ARES is comprised of organized, trained, qualified, and certified Amateur Radio operators who augment and support vital communications on behalf of the public through partner agencies and organizations during emergencies and disasters. The Amateur Radio Emergency Service, through its volunteer radio communicators, strives to be an effective partner in emergency and disaster response, providing public service partners at all levels with radio communications expertise, capability, and capacity.

# Amateur Radio Emergency Service

- Training is ***REQUIRED***.
- ARRL Courses
  - EC-001: Intro to EmComm (Online, 45 hours over 9 weeks)
  - EC-016: EmComm Management (Online)
- FEMA Courses
  - Online
    - ICS-100, ICS-200, ICS-700, ICS-800
  - Classroom
    - ICS-300, ICS-400
- Others as needed or specified by agency:
  - Skywarn
  - CERT
  - American Red Cross

# Amateur Radio Emergency Service

- ARES Members regularly train to be able to readily provide basic communications, but each emergency is different and changes to modes and methods will be made as appropriate to the conditions.
- Any licensed transmission mode available to Radio Operators may be used by ARES members.
- Proficiency is expected of ARES members in providing the supported modes. Actual operations may require other modes or frequencies not listed here.
- Sufficient operating knowledge of personal radio equipment is necessary to fully utilize the frequency and mode changes that are possible during an emergency.

# Amateur Radio Emergency Service

- ARES capabilities include the modes below within the Amateur Service.
- Standard VHF voice communications
  - Primary Net Control Station (NCS) on local and/or linked regional repeaters
  - In the event of repeater failure, members should utilize local and/or regional frequency plans.
- VHF Packet communications
  - An emergency packet network may be established using existing digipeaters and nodes if available.
  - The emergency packet network should be capable of point to point communications from remote location such as an evacuation shelter and the Parish EOC.
- HF SSB phone operations.
  - HF communications should be limited to division, regional or state net.
- Digital Communications
  - Any FCC authorized digital mode may be used to exchange messages.
  - Each mode may have unique properties that give it an advantage in a particular situation. (i.e. D-Star allows for simultaneous voice and data transmission to include photos, files, simple text messages, or GPS location data, on HF, VHF, and UHF bands)
  - RMS Express/WINLINK is the only HF Digital Mode for Formal Message Handling utilized by GOHSEP. Pactor 1, 2, or 3 may be used for Peer to Peer (P2P) communications with GOHSEP and both Pactor and VARA may be used to handle messages via a Radio Mail Server (RMS) Trimode on hf frequencies. RMS (Radio Mail Server) Packet is intended for WL2K VHF/UHF applications and may also be used for Formal Message Handling to GOHSEP.
  - Additional Winlink information can be found at https://winlink.org/
  - Additional VARA information can be found at https://www.varac-hamradio.com/

# Other Services Under AUXCOMM

# Other AUXCOMM Services

- Radio Amateur Civil Emergency Service (RACES)
- Military Auxiliary Radio System (MARS)
- SHAred RESources (SHARES)
- FEMA National Radio System (FNARS)
- Radio Emergency Associated Communications Teams (REACT)
  - Citizens Band Radio Service (CBRS)
  - Multiple Use Radio System (MURS)
  - FRS/GMRS

# Radio Amateur Civil Emergency Service (RACES)

- RACES a radio service always available to government emergency management organizations, for official government emergency communications as specified in 47 CFR 97.407 and 97.111(a)(4). There is no specific declaration or emergency event that activates RACES. The “activation” is the direction of the emergency management official to properly qualified individuals to engage in the permitted types of communications in the Radio Amateur Civil Emergency Service.
- Except for two specific cases, any communications that could be conducted under the RACES rules can also be conducted under the Amateur Service (non-RACES) rules. Those two exceptions are:
  - communications with US government radio stations for RACES communications, and
  - communications in RACES when the Amateur Service has been ordered off the air by the President’s war emerge powers under Title 47 of the United States Code, Section 606 (47 U.S.C. 606).

# Radio Amateur Civil Emergency Service (RACES)

- When an amateur operates in the Radio Amateur Civil Emergency Service, they don't join the Radio Amateur Civil Emergency Service; they operate in that service according to the applicable rules. RACES is a radio service with specific operating criteria. It is not an organization. The rules for operating in RACES require the operator to enroll in ("join") the civil defense ("emergency management") organization for the jurisdiction in which they will serve, and to register their station with that organization.
- There is no RACES organization, hence there is no RACES to join. What amateurs "join" is the volunteer program of the emergency management organization; or, as the FCC rules put it, the Amateur Radio operator must be enrolled in the civil defense organization, and the station to be used in RACES must be registered with that organization

# Radio Amateur Civil Emergency Service (RACES)

- In short, it is the radio component of emergency management, to be used to achieve the mission of the civil defense program.
- An amateur station operates in RACES only when such operations cannot be conducted under the normal Amateur Service rules:
  - 1) When it is necessary to communicate between an emergency management agency and federal government stations for official government emergency communications, and
  - 2) When it is necessary to communicate for an emergency management agency official government emergency communications while the Amateur service is ordered off the air in accordance with the President's War Emergency Powers.

# Military Auxiliary Radio System (MARS)

- The Military Auxiliary Radio System (MARS) is a Department of Defense sponsored program, established as separately managed and operated programs by the Air Force and Army.
- The MARS program was activated in November 1925 as a partnership between Army's Signal Corps and the licensed amateur radio operators of the ARRL.
- The program consists of roughly 23,000 licensed Amateur Radio operators who volunteer their time, services, and communications expertise — using their personal radio equipment — to assist the Department of Defense and other federal, state, and local agencies with auxiliary communications in the event of a disaster or emergency.

# Military Auxiliary Radio System (MARS)

- As an organized military auxiliary, MARS members are prepared to supplement the uniformed services or any designated civilian authorities by provision of specialized autonomous services when called upon or when situations warrant.
- Through training, exercises, situational awareness, and incident reporting, MARS members help the nation prepare for and respond to crises and emergencies.
- During times of emergency, MARS provides backup communication networks to military, federal, state, and local agencies.
- It is specifically authorized to communicate with other government radio services in time of emergency, including the federal SHARES HF networks.

# SHAred RESources (SHARES)

- The SHAred RESources (SHARES) High Frequency (HF) Radio Program coordinates a voluntary network of government, industry, and disaster response agency HF radio stations used for emergency communications. SHARES support government (federal, state, and county), critical infrastructure, and nationwide or multi-state disaster response organizations in two ways:
  - by transmitting emergency messages when normal communications systems are destroyed or unavailable, and
  - by providing HF radio channels for interoperability.
- SHARES support Emergency Support Function Two (ESF #2), Communications, and helps participants maintain awareness of applicable regulatory, procedural, and technical issues. SHARES is a program of the National Coordinating Center for Communications (NCC), a division of the Department of Homeland Security (DHS), National Cybersecurity and Communications Integration Center (NCCIC). In addition to government agencies, key communications companies such as AT&T and agencies such as the Red Cross have SHARES radios. The SHARES system utilizes a number of nationwide and regional networks.

# FEMA National Radio System (FNARS)

- This is a FEMA high frequency (HF) radio network designed to provide a minimum essential emergency communication capability among federal agencies, state, local commonwealth, and territorial governments in times of national, natural, and civil emergencies. FEMA monitors FNARS on HF on a daily basis.

# Radio Emergency Associated Communications Teams (REACT)

- REACT is another national emergency communications group, the members of which include Citizen's Band (CB) radio operators, ham radio operators, and others. In addition to CB and Amateur Radio, they may use General Mobile Radio Service (GMRS), Family Radio Service (FRS), and the Multiple Use Radio Service (MURS).
- REACT has an organizational structure similar to ARRL/ARES, with local teams who directly serve many of the same agencies served by ARES and other ham radio emergency communications groups. REACT has MOUs with many of these agencies as well as with ARRL.
- REACT's mission is somewhat broader than that of ARES. It offers crowd and traffic control, logistics, public education, and other services that usually (but not always) include a need for radio communication.

# Citizens Band Radio Service (CBRS)

- The Citizens Band Radio Service (CBRS) is a private, two-way, short-distance voice communications service for personal or business activities of the general public. It also may be used for voice paging. It is authorized 40 channels between 26.965 MHz and 27.405 MHz.
- Anyone, regardless of age, can operate a CB station – except a foreign government, a representative of a foreign government, a federal government agency or someone who has received an FCC a cease-and-desist order that is still in effect. Anyone who is eligible may operate a CB station for personal or business use, in accordance with the rules.
- An individual license is not required to operate a CB station and the FCC does not renew formerly issued CB Radio Service licenses;
- The FCC service rules for the Citizens Band Radio Service (CBRS) are located in 47 C.F.R. Part 95.

# Multiple Use Radio System (MURS)

- The Multi-Use Radio Service (MURS) uses channels in the 151 – 154 MHz spectrum range. The most common use of MURS channels is for short-distance, two-way communications using small, portable hand-held radios that function similar to walkie-talkies.
- MURS is authorized five channels that were previously in the industrial/business radio service and were known as the “color dot” frequencies in Part 90 of the FCC rules.
- MURS is licensed by rule. This means an individual license is not required for an entity to operate a MURS transmitter if it is not a representative of a foreign government and if it uses the transmitter in accordance with the MURS rules outlined in 47 C.F.R. Part 95 Subpart J.
- There is no age restriction regarding who may operate an MURS transmitter.
- None of the MURS channels are assigned for the exclusive use of any user. You must cooperate in the selection and use of the channels in order to make the most effective use of them and to reduce the possibility of interference.
- No MURS transmitter shall, under any condition of modulation, transmit more than 2 watts transmitter power output.
- The usual range of communications between MURS stations is less than a few miles; connecting a MURS radio to an external antenna can extend the range to ten miles or more. MURS stations are not allowed to be interconnected with the public switched telephone network. A station identification announcement is not required to be transmitted. Other restrictions on the use of MURS stations also apply.

# Family Radio Service (FRS)

- The Family Radio Service (FRS) is a private, two-way, short-distance voice and data communications service for facilitating family and group activities. The most common use for FRS channels is short-distance, two-way voice communications using small hand-held radios that are similar to walkie-talkies.  It operates under 47 C.F.R, Part 95.
- FRS is licensed by rule. This means an individual license is not required to operate an FRS radio provided you comply with the rules. You may operate an FRS radio regardless of your age, and for personal or for business use if you are not a representative of a foreign government.
- None of the FRS channels are assigned for the exclusive use of any user. You must cooperate in the selection and use of the channels in order to make the most effective use of them and to reduce the possibility of interference.
- The usual range of an FRS device on channels 8-14 is less than one-half mile, but longer range communications can be achieve on channels 1-7 and 15-22 depending on conditions. You may not interconnect FRS transmitters and radios with the telephone system.
- The FRS is authorized 22 channels in the 462 MHz and 467 MHz range, all of which are shared with GMRS.

# General Mobile Radio Service (GMRS)

- The General Mobile Radio Service (GMRS) is a licensed radio service that uses channels around 462 MHz and 467 MHz. The most common use of GMRS channels is for short-distance, two-way voice communications using hand-held radios, mobile radios and repeater systems. In 2017, the FCC expanded GMRS to also allow short data messaging applications including text messaging and GPS location information. It operates under 47 C.F.R, Part 95 Subpart E.
- GMRS is available to an individual (one man or one woman) for short-distance two-way communications to facilitate the activities of licensees and their immediate family members.
- Each licensee manages a system consisting of one or more transmitting units (stations.) The rules for GMRS limit eligibility for new GMRS system licenses to individuals in order to make the service available to personal users. (Some previously licensed non-individual systems are allowed to continue using GMRS.)
- Transmission of limited data applications such as text messaging and GPS location information is allowed.

# General Mobile Radio Service (GMRS)

- A GMRS licensee may use a combination of portable, mobile, fixed and repeater stations consistent with the operational and technical rules in Subpart E of Part 95. The use of some channels is restricted to certain types of stations and certain channels are reserved for voice-only operations, while other channels allow voice and data operations.
- None of the GMRS channels are assigned for the exclusive use of any system. You must cooperate in the selection and use of the channels in order to make the most effective use of them and to reduce the possibility of interference.
- You can expect a communications range of one to twenty-five miles depending on station class, terrain and repeater use. You cannot directly interconnect a GMRS station with the telephone network or any other network for the purpose of carrying GMRS communications, but these networks can be used for remote control of repeater stations.
- May communicate through a mobile relay station (repeater) in another GMRS system with the permission of its licensee.
- May also be with mobile stations from other GMRS systems also with permission from the licensee to communicate through the mobile relay station.

# Reference Links

- Amateur Radio Emergency Service
  - http://www.arrl.org/ares
- Air Force MARS
  - https://afmars-msn.org/
- Army MARS
  - http://www.usarmymars.org/
- Department of Homeland Security SHARES
  - https://www.dhs.gov/shares
- Emergency Alert System (EAS)
  - http://www.fcc.gov/pshs/services/eas/
- FEMA National Radio System
  - www.fema.gov
- National Weather Radio
  - http://www.weather.gov/nwr/
- REACT International
  - www.reactintl.org
- SATERN
  - http://www.satern.org/

# Question and Answer