Roadmap to Fill the Doughnut Hole (Discussion Part II)

The goal for amateur radio emergency comm operations for a community I suggested in Part I was: “provide as soon as possible communications services to those who do not have a means to communicate because of the emergency.” Said another way, if amateur operators are involved in a disaster, we need to fill the doughnut hole with an appropriate level of communications for the community. After we think about what needs are to be addressed, we can develop a roadmap for our preparations and operations. Therefore, one of the first things to do is determine the community needs and wants for communications services. I suggest that the needs and wants list is fairly consistent across the spectrum of communication services contemplated.

If we were to do a communication need and wants assessment, we may discover that modes like two-way voice, live video “chat”, Instagram, text messaging, and e-mail might be on the list. As it turns out, amateur communications can fill a great deal of that desire depending how creative we can or want to be. I mentioned in Part I that when a disaster occurs, first responders will have robust systems in-place to manage their resources. First responders today have equipment with capability far above what we might be able to provide. That means in my view, the primary needs that we should address are most likely with the community members who have no access to communications platforms like cell phones, internet, and even land lines. To be sure, if first responders ask for us to send and receive traffic for them, we should do so if we can. That means we can derive a primary need for the community which **is to be able to send and receive third party traffic from the hole to people outside the hole.** In this case, community members are the third party.

At this point we should separate desires from real needs. People in the hole need to connect with people in the doughnut for things like health and welfare status updates and possibly event operational traffic. As it so happens, WINLINK fills all the needs. For those who have an aversion to using the internet even in the doughnut, CW, SSB and keyboard to keyboard modes like PSK 31 will work although message delivery for “the last mile” can get complicated. Another need might be to provide communications between people within the hole. Informing people in the hole where resources are located is one example. This may necessitate establishing an FM comm net perhaps on VHF with amateurs scattered around the hole to relay the location of resources.

Using WINLINK, CW, SSB and perhaps PSK 31 as a primary communications mode leads to a station configuration in the Hole that looks a lot like a modified Field Day set-up. A radio that has an included sound card with an attached keyboard may be all that is needed. I don’t think there is a need to go into detail what a Field Day station looks like as there are many examples available.

My assumption was that there is no communications capability from the hole to the doughnut AKA the outside world. If the doughnut hole is only a few square miles, the needed station capability may not be as great as with a doughnut hole that is a few hundred square miles. Further, while creating our response to the needs list, we must temper our thought process with any limitations that may exist. Some limitations are embodied in the laws of physics.

The doughnut hole analogy was a creation of the USGS where they advocated using WINLINK as a single mode for communications. I believe we can offer more and therefore I’ll coin another analogy called the **Individual Capabilities Frontier**. An Individual Capability Frontier is a notion that describes the outer limits of everything a particular individual amateur is capable of providing when engaging in an emergency communication event. When community communications need and wants are determined, they can be compared to what is possible given an Individual Capabilities Frontier to see if there is a match.

The Individual Capability Frontier assessment can not only depend on what you have for equipment and what you are capable of providing but where you are located physically with respect to the doughnut hole. If you are inside the doughnut hole and can operate your home station, your capabilities may be greater than if you mobilize into the doughnut hole. I have a lot more equipment and capability at home than I would if I had to move to a remote location. For example, my large antenna structure cannot be easily moved, and I have a linear amplifier that requires power that would difficult to generate in the field.

When we think about our Individual Capabilities Frontier, I suggested we need to think modified “Field Day” set-up for our emergency kit. Using modern multi-mode radios allows us to provide several ways to communicate with the outside world. The modes and frequencies we can employ in a small area may be significantly different than if the hole is a large area. Having more modes and frequencies to select from allows us to satisfy community needs and more community desires for communications.

You’ll see in the next part that selecting the radio is only a part of the complete kit that is needed to flesh out your Individual Capabilities Frontier for use in an emergency environment. Discussion Part III will continue with what it might look like when you set-up either at a mobilized location or home QTH within a disaster area.