



Sticky Notes

GECO Newsletter
Vol. 4 No.3, Sep 2019

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Ready to Serve and Sustain Our Community



Emergency Preparedness: Basic Steps

We came across an earlier article we wrote on [15 Sep 2005](#) urging people to use the Geographic Systems Model to prepare for emergencies. We've decided to dust off these notes and spruce them up to bring them up to date in the form of work sheets for you to use.

While there are varying definitions of "emergency" for legal purposes, in general, an emergency is often a sudden, unexpected disruption threatening life or property. Once an emergency begins, it is too late to prepare for it. And yes, though you might prepare and plan (as we suggest), you should also be aware that emergencies have a way of destroying the best made plans.

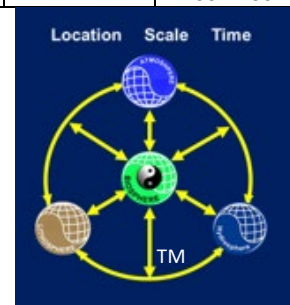
Step 1. Review your time schedule to determine where you are 24 hours a day/7 day a week (e.g. home, commute route, workplace, school, etc.). Each family member should complete a form. Schedules vary through the year. Complete as many forms needed for any reason. Be sure each member of your family has a copy of everyone's schedule.



EmPrep GECO-style

Time	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Time
0000-0200								0000-0200
0200-0400								0200-0400
0400-0600								0400-0600
0600-0800								0600-0800
0800-1000								0800-1000
1000-1200								1000-1200
1200-1400								1200-1400
1400-1600								1400-1600
1600-1800								1600-1800
1800-2000								1800-2000
2000-2200								2000-2200
2200-2400								2200-2400

Step 2. Use the [Geographic Systems Model](#) to identify the common environmental hazards your region. Every location on Earth is a unique combination of the components and interactions of the air, land, water, and living things at that place. The model guides your study of that place at different levels of detail and in different time frames (day/night, seasons, etc.). For example, the Air is the home of weather conditions. It is different in southern California from the weather in Hawaii. The Land is different, too. But there are similarities: both places have volcanoes and deserts. The Water is



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similar in the salt ocean water is present in both places. But the fresh water supply in California

Geo-sphere	Natural Hazard
Atmosphere	Severe storms Lightning
Lithosphere	Earthquakes Landslides
Hydrosphere	Floods Flashfloods
Biosphere	Wildfires Epidemics

depends on snowfall in the mountains. In Hawaii it is mainly rainwater.

Every location has geo-hazards. You need to know those hazards relative to you home, place of work, and other locations your family occupy each day through the year. The table on the right shows the environmental spheres, selected associated natural hazards and inter-connections. The solid lines are direct/primary

relationships. The dashed lines are indirect/secondary relationships.

The table below is an example using the Geographic Systems Model for a location in Nan Province,

Geo-Hazards Matrix: Nan Province, Thailand		
Geo-sphere	Natural Hazard	
Atmosphere	• Severe storms • Lightning	Check local news media, papers, and talk with long time residents about what they remember about past disasters.
Lithosphere	• Earthquakes • Landslides	
Hydrosphere	• Floods • Flashfloods	
Biosphere	• Wildfires • Epidemics	

Thailand. The specific natural hazards are found from the Internet, the historic record, news media, and talking with residents. Now shift to the local scale and use maps to see how these natural hazards can affect your station and its access routes. You now see the potential geo-hazards for your site.

The next step is to work on the details and see how you can solve these problems. You can use, the 5-step problem solving method from basic algebra:

1. Clearly define the problem;
2. Identify the variables;
3. Defined the relationships of the variables;
4. Attempt a solution;
5. Check your work

Now you can start to use the **General Systems Model & Matrix** (diagrams below). These tools are the core of the Geographic Systems Model. The General Systems Matrix expands the General

Geo-Hazards Check List	
Atmosphere	☐ Climate Change ☐ Heat Wave ☐ Drought ☐ Severe Storms ☐ Lightning ☐ Winds ☐ Snowstorms ☐ Blizzards ☐ Ice Storms ☐ Dust Storms
Lithosphere	☐ Earthquakes ☐ Volcanoes ☐ Sink Holes ☐ Landslides ☐ Mudslides ☐ Debris Flows ☐ Avalanches
Hydrosphere	☐ Floods ☐ Flashfloods ☐ Storm surge ☐ Tidal Bores ☐ Tsunamis
Biosphere	☐ Wildfires ☐ Insect plague ☐ Algal blooms ☐ Epidemics ☐ Pandemics

Systems Model with key words to systematically use common general science terms. (See the diagram on the right.) It isn't important if you have all the data to complete the matrix. Incomplete information shows the data needed. If you don't know, ask someone. No one has all the answers. Teamwork is essential. The more complete the matrix, the better the chance for synergy to help provide enlightened insight to your inquiry/study. Understanding the materials and forces associated with the geo-hazard points the way to making appropriate emergency preparations. The cost of mitigation also affects your preparation plans.

For example, if you live near a river that is downstream from a dam, it will be very costly to try to protect your station. If the dam collapsed, or were in danger of collapse, it is probably best to evacuate. For the dam collapse, the Inputs could be water (increased rainfall). The Energy could be Potential Energy (the weight of the water exerting pressure on the dam). The Process could be Alteration (changing potential energy of the water to Kinetic energy).



The General Systems Model

Input	Matter*	Solid
		Liquid
		Gas
Process	Energy	Kinetic
		Potential
Input	Matter	Solid
		Liquid
		Gas
Process	Energy	Kinetic
		Potential

The General Systems Matrix

*Matter: Advanced research has identified 5 other forms of matter; but these 3 general forms serve quite well

Step 3. Prepare an emergency kit relevant to your life / lifestyle, family, and circumstances. Individual and family needs vary. Consult various Internet sources for [suggested kits](#). Or you can review some [lists](#) and make up your own kit. As a rule, plan to be able endure for 72-hours for help to arrive. Consider special needs for infants and the elderly or infirm. It's a good idea to have each person carry a whistle. It can be more effective than shouting and saves your voice.

The diagrams to the right are a summary of my personal plan for emergency kits at work, in my car, and at home before I retired. The plan was to get out of my office to my car and combine the office and car kits for extended endurance.



Office/School (1-2 days)



Car (2-5 days)



Home (1-2 weeks)

Step 4. Make a family emergency plans----

include a contact outside your area. There should be at least 4 main plans: A) Shelter in Place; B) Evacuation; C) a Plan B for both. You may need several plans (one for each type of disaster in your area. The "habitat"

essentials for all life on Earth are your guide: Shelter, Food, Water, Space. For example, a typical family might be at work/school, at home, or in transit. You need to identify sources for these four survival essentials at work/school, at home or while traveling to and from. One set of plans would be for staying in place; another for evacuation from those places. Your office or school should have an emergency plan. If you shelter in place or evacuate, does your family know where to find you? For your trip to/from work or school, does your family know the route? Where along the route might you shelter in place or evacuate to? Does everyone know how to do a safety check of your home to decide if they can stay there? If they must evacuate, where would they go? Be sure all family members know someone out of state to report to if separated during an emergency.

[**Note:** Consider the possibility family members may be separated in the confusion and chaos of an emergency. Do you have recent photos of each family member? For young children, consider keeping a set of fingerprints or hand/footprints to facilitate positive identification. There are pluses and minuses to doing this, so consider it from all angles.]

5) Organize important family "vital Records:" (e.g. marriage/divorce, birth/death certificates, adoption papers, ownership/title, citizenship documents, insurance policies, passports, social security cards, etc.). Make copies and put them in several "safe" places. The copies should be "certified copies" (notarized as being true copies of the originals).

[**Note 1:** Some states prohibit making copies of vital records. Check to be sure. In this case you may need to order multiple records from the appropriate authorities.] Be sure to periodically update these. One of the "safe" places should be outside your general area. **Note 2:** Your home can be so severely damaged, it gets condemned. This means you may never be able to have access to retrieve anything in your home.] While many records may be considered public, having any document to verify your identity and ownership on hand will speed up post disaster recovery. Whenever possible, keep these documents in waterproof and fireproof containers.]

Work		School		In Transit		Home	
Stay	Go	Stay	Go	Stay	Go	Stay	Got

Make contact lists for each of the places family members would be in their daily routine. Include maps with specific names of people in charge. Plan if a friend or relative might pick up your children. Have necessary permissions in place.



A collection of stylized, colorful icons representing various objects. At the top left is a clipboard with a red cover and a white sheet of paper with red checkmarks. Next to it is a black smartphone. To the right is a red vase with a black Greek key pattern. Further right are two large, clear diamonds. Below these are a string of white pearls, a red pen, a black bow tie, and a red wristwatch with a white face.

Disposing of Used Batteries

State battery recycling requirements in effect

Producers required to offer or fund battery recycling

No battery recycling requirements

Map showing the status of battery recycling requirements by state:

- Teal (Requirements in effect):** CA, NV, UT, CO, NM, AZ, TX, OK, AR, LA, MS, AL, GA, SC, NC, VA, WV, PA, NY, CT, RI, DE, MD, DC, HI, PR.
- Dark Green (Producers required to offer or fund battery recycling):** ME, VT, NH, MA, CT, RI, DE, MD, DC, FL.
- Grey (No requirements):** WA, OR, ID, MT, ND, SD, NE, KS, MO, IL, MI, IN, OH, KY, TN, AL, GA, SC, NC, VA, WV, PA, NY, CT, RI, DE, MD, DC, AK.

Most batteries in the world fall into two broad categories: Single use and Rechargeable. Even rechargeable batteries can wear out and need to be disposed. The “how” of properly disposing of any used battery can be complex in technical details or the actual breakdown of the battery. For the moment, we will focus on the basic consumer part of “how and where” to get the used batteries on their journey to recycling or proper disposal. FFI: <https://www.call2recycle.org/locator/>

Step 2. Know the proper disposal procedures. There are a range of options (depending on the type of batteries you have): 1) recycle them; 2) toss them in the trash (***except for California***); 3) take them to a hazardous materials clean-up day; 4) take to a battery shop or recycling center. Not all options are available for all battery types in all places. FFI: How to recycle:

- Car batteries
- Rechargeable batteries
- Single use batteries

HAM radio is self-regulated. We depend on each other to follow the rules and toe the line. Thanks to Harry KB7ULN we have access to free SLA deep cycle rechargeable 12 V batteries for our radios. We must be mindful of our pledge to Harry, obey the law and to set a good example by properly disposing of the free batteries (est. cost of \$125 each when new). At GECO, we are fortunate to have 2 dozen of these

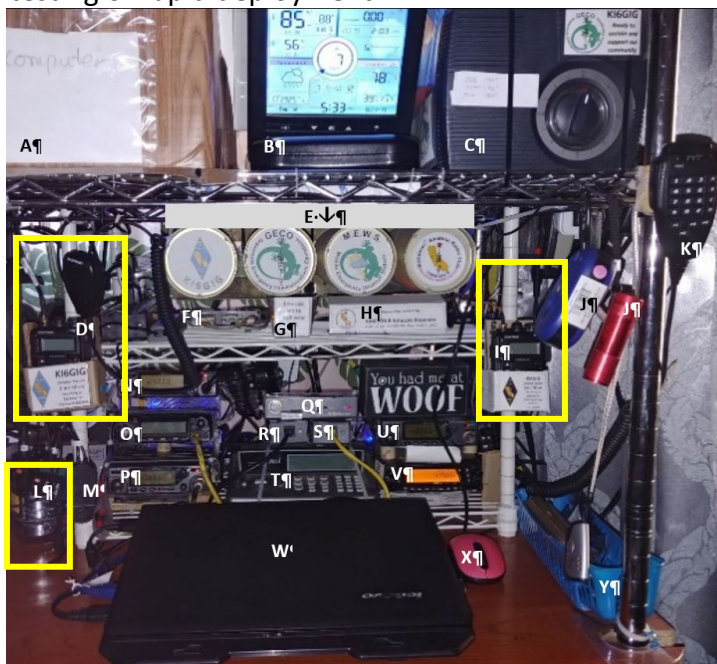


batteries for our station battery bank. This amounts to a whopping savings of \$3000 in savings. We believe in the adage “There is no such thing as a free lunch.” Our commitment and payback to Harry and GERC is to support the GERC Net and continue our efforts in spreading the word for HAM radio, EchoLink, EmPrep, and EmComm to any and all who are interested to learn. 🌱

GECO HT / Radio Rack Integration

In a move to improve the GECO EmComm resilience, we integrated GECO HT radios to the KI6GIG/KM6EON-R radio rack (items D, I and L below). Two HTs were dedicated to existing station antennas as “ready back-up” 2m and 70cm radios for the main base station radio. The HT in position “D” makes use of two bands on the Diamond X3200A antenna which were previously unused. The HT at “I” was connected to the dual band Yagi antenna. This antenna was previously on the main base station radio antenna switch. Dedicating an HT to the Yagi means the base station radio can remain on the vertical dual band omni. This allows independent use of the Yagi without loss of omni operations. Two HTs allocated for field use are kept at the ready in a storage tray next to the radio rack. This makes for easy access to the HTs for testing or rapid deployment. 🌱

- A. Computer Accessories storage bin
- B. Acurite 5-in-1 Weather Display
- C. Radio Shack Antenna Rotator
- D. HT on dual band on Diamond X3200A**
- E. 440 MHz Repeater Duplexer
- F. Split repeater hardware tray
- G. KM6EON-R RigBlaster M8 Mic storage
- H. KM6EON-R EchoLink Hardware tray
- I. HT on dual band Yagi antenna**
- J. Flashlights
- K. TYT TH-9800 base station mic
- L. Field HT radio storage tray**
- M. Radio Rack light switch
- N. ADI AR447 440 Repeater TX
- O. TYT TH9000 220 MHz TX
- P. ADI AR147 2m TX
- Q. RigBlaster M8 (for KM6EON-R)
- R. RigBlaster Nomic (for 2m TX)
- S. RigBlaster Nomic (for 220 TX)
- T. Radio Shack Scanner
- U. ADI AR446 440 Repeater RX
- V. TYT TH9800 Base station radio
- W. EchoLink Computer & fan
- X. Computer mouse
- Y. Misc. hardware tray



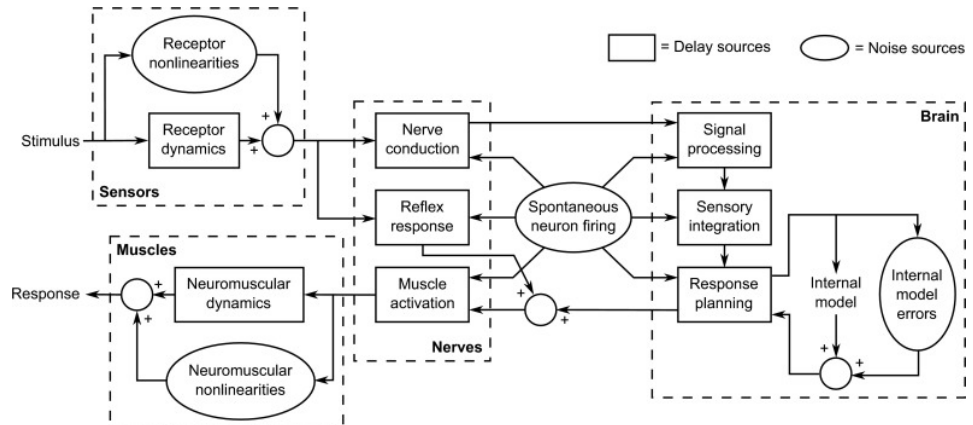
GECO “Stop ‘N Op” Policy

Several decades ago, when we first learned to drive, distracted driving didn’t seem to have many laws associated with the phrase. I recall my driving instructor warning us to avoid smoking and eating while driving. When AM/FM radios were added to cars, we were warned to keep the volume down so we can hear emergency vehicle sirens. There was a time CB radios were all the rage. Many folks got and used them. At the time, I didn’t know many HAMs, but I assume there were many with mobile rigs at the time, too. The era of the cell phone seems to have brought distracted driving to new levels of concern. This may be due to just about everyone seems to have a phone whereas a much lesser number of folks had CB and HAM radios. Let’s face it, just about anything happening inside and outside of the vehicle NOT essential to safe driving can distract a driver. Accident statistics show teens tend to get into more accidents when there are 4 or more teens in the car.

The development of autonomous driving vehicles created the need to study human sensory interactions for driving. Even before seeing these studies, GECO implemented a policy of Stop ‘N Op while driving and using radio transceivers. The policy was created for GECO EmComm operations in rural Thailand. The typical scenario called for a lone HAM driving in chaotic emergency conditions. Operating the radio, making and reporting

observations while driving on narrow, twisting mountain and village roads was deemed too risky for personal and equipment safety. Ideally, GECO would only conduct mobile communications on the move when the driver was accompanied by a radio operator. We think about mobile EmComm operations relative to Figure 3 above. Picture a single EmComm driver/operator but with at least TWO of the flow chart systems running parallel (simultaneously) in their head. You may be better man than me, Charlie Brown. In an emergency, I prefer to focus on driving the vehicle; then stop to operate the radio.

To further compound and confound the situation above, consider that human beings are social and emotional beings as well. So while driving around to perform EmComm duties, there’s also the possibility that some of the driver/operator’s brain may be thinking about their family/friends, what’s for dinner, how they are feeling about being out and about in the chaos and being wet and cold. There is no way to simplify the human sensory dynamics of EmComm operations. But GECO feels it is better to reduce and minimize distracted driving as a stress factor. If you get into an accident due to distracted driving in an emergency, you won’t be a viable EmComm operator. 🍀



This is Fig. 3 from “A review of human sensory dynamics for application to models of driver steering and speed control.” [Christopher J. Nash](#), [David J. Cole](#), and [Robert S. Bigler](#). *Biol Cybern.* 2016; 110: 91–116. Published online 2016 Apr 16. doi: [10.1007/s00422-016-0682-x](#) Diagram of the main processes carried out by the sensorimotor system to generate a physical response to a sensory stimulus. Stimuli are perceived by various sensors, which transmit electrical signals through the nerves to the brain. The brain processes and integrates these sensory signals and then plans a response using an internal model of the environment. The planned signals are sent to the muscles and shaped by the neuromuscular dynamics to give a physical response. There are various sources of time delays, shown by boxes, and noise, shown by ovals.”