



Sticky Notes

GECO Newsletter
Vol. 4 No. 2, Aug 2019

www.neighborhoodlink.com/GECO

Email: gecoradio@gmail.com

Ready to Serve and Sustain Our Community



GECO HAManitarian Program Launched

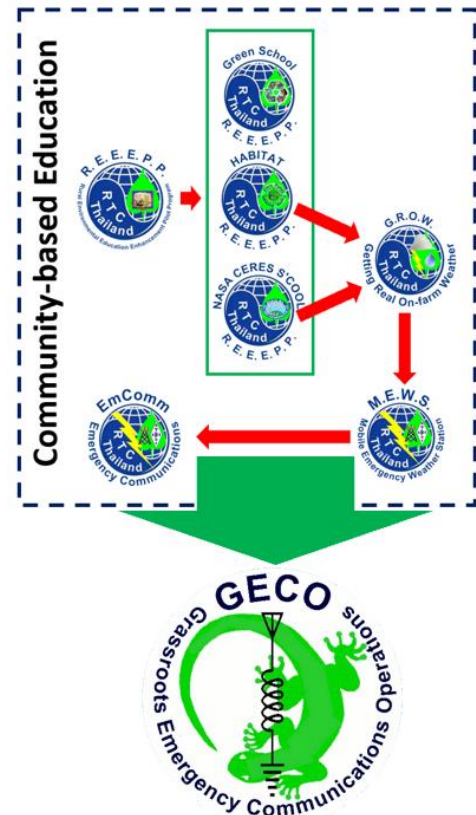
The HAManitarian program is the most recent and comprehensive update of the original NextGen EmComm concept paper of the Rural Training Center-Thailand (RTC-TH) EmComm group. As of Sep 2014, GEC responsible for updating and revising all previously published RTC-TH EmComm materials.

The original RT-TH NextGen EmComm paper has undergone a series of revisions. The GECO HAManitarian program is the most recent comprehensive revision of the original paper. We define a HAManitarian as a HAM radio operator dedicated to EmPrep, EmComm and increasing disaster resilience for community sustainability.

The [HAManitarian](#) program uses a community-based education (C-bE) style created by Greg KI6GIG. This education approach integrates schools, businesses, civic organizations, government agencies (local to national levels) among others. The idea is to use schools as the training ground for EmPrep and EmComm. During disasters, school often become emergency shelters. Students trained in EmComm add value by proving communications. Applying their EmPrep lessons at home and in the community helps to improve community disaster resilience. From where we sit, few communities would refuse to have more resilience in the coming future.

The following actions have also been taken:

- Sam A41KL submitted a copy of the paper to the Royal Oman Amateur Radio Society for their consideration.
 - An announcement for the HAManitarian program was posted in [Southgate Amateur Radio News](#). We included a Call for volunteers to help translate the paper to other languages.
 - RL Brunton G4TUT saw the announcement in Southgate ARN and posted it in [QRZ Newsroom](#).
 - Mendaly LX2VY saw the SARN announcement and volunteered to translate the paper to [French](#).
 - Max IKOTIX also responded and helped translate the paper to [Italian](#).
- . We are



The evolutionary history of GERC

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Please feel free to share information about the HAManitarian program with any and all who may be interested. The 21st century may be one of unprecedented natural disasters. Building community resilience and EmComm capacity should be a top priority. 🌱

Hams Helping Hams (H³)



HAMs Helping HAMs

Amateur radio's longstanding tradition of HAMs sharing and helping other HAMs to learn and improve their radio knowledge and skills. GECO created a Certificate of Appreciation with a special logo to acknowledge and encourage this tradition. The logo (shown on the left) uses the Chinese ideogram for bridge with a blue horizontal line to reinforce the image



Sam A41KL



Max IKOTIX

of a bridge. We pay our respects and appreciation to these HAMs in alphabetic order by callsign.

- **A41KL Sam** for submitting the GECO HAManitarian paper to the Royal Oman Amateur Radio Society.
- **IKOTIX Max** for translating the GECO HAManitarian paper from English to Italian.
- **KB5ELV "Buddy"** for granting permission to post his paper "Bao Feng UV-5R Tips for Eyes Free Operation" on the GECO website.
- **KE6YGF Rob** for contributing his paper "Lead Acid to Lithium: Considerations and Comparisons of Batteries for HAM Radio" for posting to the GECO website.
- **LX2VY Mendaly** for translating the GECO HAManitarian paper from English to French.
- **N6WZK Joe** for his dedicate technical expertise and donation of equipment to set up and maintain the Wanderers ARC EchoLink Repeater KM6EON-R, node #717585.
- **VU3LOL Aniket** for contributing his article "Morse Coder/Decoder" to the W.A.R.C. newsletter "Footprints".
- **W7BBO Mark** for granting permission to post his PowerPoint presentation "Radio Antenna Basics" on the GECO website.



"Buddy" KB5ELV



Rob KE6YGF



Mendaly LX2VY



Joe N6WZK



Aniket VU3LOL



Mark W7BBO

If you or anyone you know have useful information to share on topics dealing with emergency preparedness or emergency communications, please have them contact us at gecoradio@gmail.com with "Information to Share" in the subject line. GECO is an informal volunteer community-based education group. We are not a formal non-profit, but we operate with the spirit of mutual respect, mutual benefit to make the world a better place for all. We stay true to the spirit of HAM radio for friendship, international understanding. 🌱

Some New Postings on the GECO Website

Grassroots Emergency Communications Operations

Lead-Acid-to-Lithium:¶

Considerations and Comparisons of Batteries for Ham Radio¶

By Rob Foth, KE6YGF, readyfothills.com ¶

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www.neighborhoodlink.com/GECO gecoradio@gmail.com

Ready-to-Serve-and-Sustain-Our-Community¶

<http://www.neighborhoodlink.com/files/document/529251748>

Rob KE6YGF, a member of GERC, gave this talk at a monthly meeting. We missed the meeting but asked if he could share his notes from the talk for a newsletter article. He did so by email. Upon receiving them, we decided it deserved to be a separate paper on the website. Thanks, Rob.

Radio Antenna Basics

HAM radio is about networking, making friends, and sharing to expand understanding. In that spirit, Mark N7YLA sent us a copy of a presentation by Mark

Yordy W7BBO about antennas. We thought it so basic and easy to understand, we wanted to include it on the GECO website to share with others. Through Mark N7YLA, we got to know Jim N7OIP who personally knew Mark W7BBO. We asked Jim to relay our request for permission to post "Radio Antenna Basics" on the GECO website. In the grand tradition of HAM radio, Mark W7BBO agreed. This reaffirms our credo "It's better to Network than to not work." Thanks to everyone involved, and especially to Mark W7BBO.

Some Antenna Calculator Links

During the past year we got emails from new HAMs asking about easy to make VHF/UHF antennas. The Internet abounds with many articles, plans, etc. for these. We thought it useful to provide visitors to the [GECO site](http://www.geco.org) antenna calculators to help new HAMs.

It is readily arguable that "build or buy" doesn't always save you money. But money shouldn't be the key measure in this effort. I see the cost of building an antenna as the tuition for the knowledge and insight gained by hands-on experience and learning.



By

Mark Yordy W7BBO
W7BBO@COMCAST.NET



Grassroots Emergency Communications Operations

Home Our Info Discussions Calendar **Pages & Links** Meet

Pages & Links

Add

Documents & Pages > Edit **External Links** > Edit

Antenna Calculators

[Amateur Quarter Wave Ground Plane Antenna Calculator](#)

[Dipole Antenna Length Calculator](#)

[Full-Wave Loop Antenna Length Calculator](#)

[J-Pole Calculator for any Band](#)

[Moxon Antenna Calculator](#)

[Slim Jim & J-pole Antenna Calculator](#)

Two Sets of Papers for New HAMs

Mark N7YLA held a successful Tech Licensing class in early 2019. This inspired GECO to produce a series of papers for new HAMs. It started with a three-part series on HT tips. HT radios are often the first radio for new HAMs. This led to the importance of SWR measurement. The idea is to establish good habits and practices in new HAMs. We feel SWR measurement and the importance of this skill needs to be emphasized for new HAMs. These papers are posted to the [GECO website](http://www.geco.org).



HT Tips for New HAMs: Part 1

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HT Tips for New HAMs: Part 2

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HT-Tips-for-New-HAMs:-Part-3¶

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SWR Part 1: Introduction & Meters

Part 1 of a 3-part series

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SWR Part 2: Bands / Frequencies of Interest

Part 2 of a 3-part series

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SWR Part 3: Basic SWR Measurement

Part 3 of a 3-part series

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GECO Supplementary PVC Masts

When we operated in Thailand, bamboo, PVC and steel pipe carried the day for our radio antennas. Back in the U.S., and based in a rented apartment, we faced significant challenges. We were fortunate that our landlady allowed us to loft a few antennas. Here is a photo record of our various PVC antenna masts stored at our station.

Test Mast Base: This is mast base we use to test any antenna before permanent installation or field use assignment. It is a 1.5 m length of 1 ¼ inch PVC pipe with a straight coupler. Additional sections of PVC pipe can be added to increase the mast height. Permanent antenna installations are either at the station or on a vehicle. Field use assignments often means an antenna is assigned for use with a specific radio. All antenna tests are a unique combination of antenna / radio. Our basic assumption is antenna testing factors include antenna, radio, the coax, they type of test and the overall test environment.

The GECO test mast (photo on the right) is best used for technical evaluations of SWR and inductance. It is not the best location for testing antenna performance. It is shadowed by the building to the north (until the antenna is lofted to a height of 4m). It is in easy reach of the station radio rack to use those radios for tests. There is room on the porch to set up a TV tray table when testing other radios.



Bow Mast: We got the information to make this 1.8 m tall mast for roll-up antennas from [N9TAX](#). In the left-hand photo, it is the gray-colored mast mounted



to the tan-colored Test Mast Base described above. The dashed yellow line shows the position of a roll-up antenna. If our main station antennas are damaged, a roll-up antenna is our back-up. During an emergency, the Bow Mast can be mounted on PVC extension sections added to the Test Mast Base. The roll-up antenna is then high enough to clear the top of the roof and have a clear 360° field of view.

Emergency Nested PVC Mast. This mast is two sections of PVC pipe. The lower section is 1 ¼ inch diameter and _m long. The supper section is 1-inch diameter and _ m long. When mounted on the Test Mast Base, it can extend to a total height of _ m. This mast is flexible in light winds. It must be guyed to the porch railing at pre-determined points to be stable.



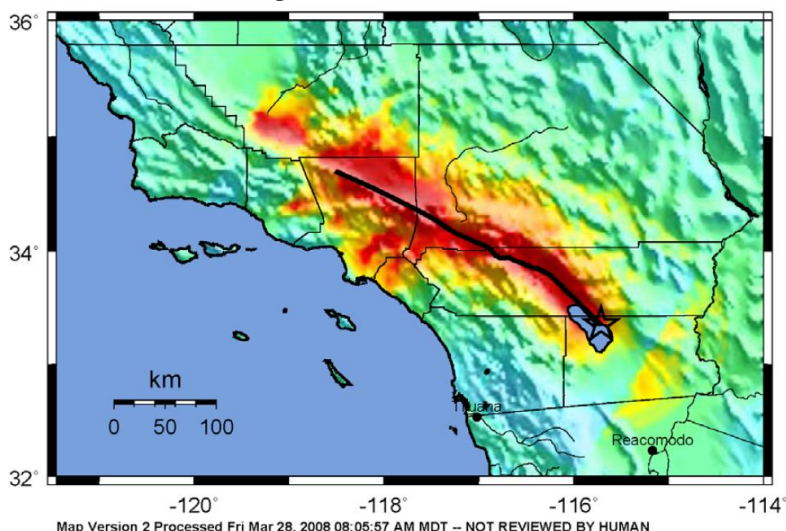
All our PVC masts can be used as emergency antenna supports if our main station antennas are incapacitated. The station's performance may be less than normal depending on the radio, antenna, and operating conditions. But we are confident the station will be able to operate. 🍋

The “Big One” Reality Check

With nearly 18 million people in the greater Los Angeles area, what is your family emergency plan when the “Big One” strikes?

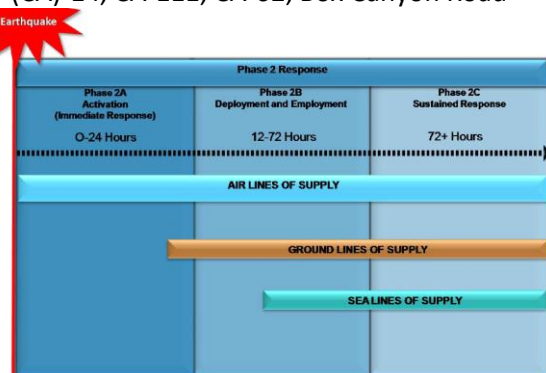
The “Big One” is long overdue. And the “Great Shake Out” scenarios for the southern section of the San Andreas Fault are not pretty. Here’s what the 2008 scenario looked like:

“ShakeOut” Scenario of 2008. The southern San Andreas Fault has generated earthquakes of magnitude 7.8 on average every 150 years—and on a portion of the fault that ruptures in the ShakeOut Scenario, the last earthquake happened more than 300 years ago. The most critical damage occurs to Interstate 10 in the Coachella Valley and in the San Gorgonio Pass, Interstate 15 in the Cajon Pass, California (CA)-14, CA-111, CA-62, Box Canyon Road



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Figure 1: USGS Shakeout Scenario ShakeMap



and Big Pines Highway. Other disrupted lifelines include fiber optic cables (90 crossings), petroleum and natural gas pipelines (39 crossings), railroads (21 crossings), aqueducts (32 crossings), and overhead electric power transmission lines (141 crossings).”

The response timeline for the 2008 scenario is shown on the left. We are sure how effective ground supply and sea supply will be within the planned 72-hours. They might start. But given the number of freeway bridges and overpasses between the seaports and airports, relief supplies will be slow getting delivered. Other than damaged

and blocked roadways, we wonder where all the transport vehicles will be getting their fuel. If possible, we think it wise to plan on 1-2 weeks before any resupply. If you think about doing that, really look at how much space you will need to have for food, water, and other essential consumables for 2 weeks. We don’t think you will be able to backpack that amount of food and water. If you need a gallon of water per person per day, one person would need to carry 14 gallons of water. Each gallon weighs 3.8 kg making it necessary to carry 53.2 kg just in water alone! If you use dehydrated food to keep your pack weight down, you may need even more water to prepare the food for eating. [Note: Do you have dehydrated food in your emergency kit? Have you tried cooking and eating it? Do so before an emergency.] Don’t forget the weight of clothing, first aid kit, flashlight, cooking kit (stove, fuel, etc.), and sanitation gear. I won’t be able to carry all that weight. Evacuation doesn’t seem feasible for me.

Examine possible evacuation routes from you home and from your workplace. Count the number of bridges, overpasses, major power transmission corridors, gas pipelines, and other similar possible barriers your evacuation route may cross. Again, evacuation from our station isn’t very feasible.

It is highly likely we may need to shelter in place IF we still have a place after the quake. Water

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storage won't be easy. We rent a small one-bedroom apartment. For now, we are assuming we may be able to shelter in place. The next option is to camp out as close to our QTH as possible since most of our supplies are stored there. But this is contingent on the apartment building being habitable.

After medical attention (if needed), water is one of the first critical needs. And very shortly after that is sanitation. Most families are not well prepared for this. New Zealand had successfully test [composting toilets](#) in the wake of some major earthquakes on North and South island. Here are the [instructions](#) for what they did in New Zealand. Look over this information and prepare ahead of time. The catch phrase for EmPrep is "Once the disaster begins, it is too late to prepare."



Composting toilets for New Zealand earthquake use.

Reading various post-disaster reports point out the need for light (flashlights and batteries) and the impact of food type and quality. Many people pack away food for their emergency kits. But they don't often or routine practice preparing and eating it. Do this regularly so you know what you like and don't like. Nothing adds misery to the stress of surviving a disaster like eating food you don't like. And then there is the food prep. How will you cook the food? We have a gas stove (uses compressed gas cylinders which have a shelf life), a small [wood burning stove](#) (uses small twigs and wood chips and generates power to charge a phone or USB device), and an [emergency solar cooker](#). 🌱



This hand squeeze LED flashlight does not need batteries.



This stove burns twigs to make electricity to charge a phone.



Emergency solar cooker made with a car window sunshade.

Basic EmPrep Lessons to be Reviewed/Revised

The introductory EmPrep lessons are still available free online but will be reviewed for possible revision. If you have constructive suggestions or new info to add, please email us. Full credit will be given to all contributors and sources. No one person knows it all. Your help is appreciated. 🌱

[EP-0 Emergency Preparedness: Some Basic Choices](#)

[EP-1 Preparing for Emergencies](#)

[EP-2 Shelter](#)

[EP-3 Water](#)

[EP-4 Food](#)

[EP-5 Space](#)

