

## Emergency Preparedness Reference Card Sets

The monsoon season in South Asia prompted us to prepare a set of reference cards for "Lightning Safety" for our friends in the West Bengal Radio Club. The set began with estimating the distance of the storm to your operating site. It was followed by three additional cards with lightning safety tips. India has many lightning strikes making it particularly hazardous for EmComm HAMS

**EmComm Hazard: Lightning & Distance**  
Thunder & Estimating the Distance of Lightning to Your Operating Position


Step 1. Watch for lightning flash; count seconds (Time) until hearing the thunderclap.

Step 2. Divide the Time from Step 1 by:  
3 to get the distance in kilometers (km)  
5 to get the distance in miles (mi)

**Lightning Hazard:**

- When the flash and thunderclap are almost instantaneous, you may be in serious danger.
- People have been struck by lightning 30 miles away from a thunderstorm.

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# Seconds	km	mi	# Seconds	km	mi
1	0.33	0.20	11	3.67	2.28
2	0.67	0.40	12	4.00	2.40
3	1.00	0.60	13	4.33	2.60
4	1.33	0.80	14	4.67	2.80
5	1.67	1.00	15	5.00	3.00
6	2.00	1.20	16	5.33	3.20
7	2.33	1.40	17	5.67	3.40
8	2.67	1.60	18	6.00	3.60
9	3.00	1.80	19	6.33	3.80
10	3.33	2.00	20	6.67	4.00

**Outdoor Lightning Safety: HT Radio Systems**  
This is for EmComm HAMS using HTs in the field.

- Turn off your radio.
- Avoid open fields and hill tops.
- Seek shelter in low places, valleys, ravines or caves.
- Stay clear of trees and other tall objects.
- Stay away from metal objects, water, wet objects.

**Use the 30 / 30 Rule**  
When flash/thunder count is less than 30 seconds, TAKE COVER. Stay under cover for 30 minutes AFTER the storm passes.

**The safest place is inside a vehicle, but do not touch anything metal.**



**Outdoor Lightning Safety Position**  
This is for EmComm HAMS operating in the field.

**Use the 30 / 30 Rule**  
When flash/thunder count is less than 30 seconds, TAKE COVER. Stay under cover for 30 minutes AFTER the storm passes.

- Keep 30 ft away from others.
- Crouch low to the ground. Do not lay down!
- Keep hands together & off the ground, only balls of your feet contact the ground.
- Cover your ears.
- Keep others close to your body.
- Keep away from metal, trees and tall objects.



to operate during monsoon season and whenever thunderstorms are present

### Lightning Safety

So far, the first four Lightning Safety cards are:

[GECO Lightning Distance Estimation](#)  
[GECO HT Lightning Safety Card OLS-1](#)  
[GECO HT Lightning Safety Card OLS-2](#)  
[GECO HT Lightning Safety Card OLS-3](#)

If the hotlinks above don't work, go to <http://www.neighborhoodlink.com/GECO/pages>. Scroll down the left column to the section "GECO Reference Cards". The reference cards are extracts from the original EmPrep lesson [EP-9 Lightning](#). We plan to produce a few more reference cards for dealing other lightning safety related topics. Watch the GECO website and announcements in future issues of "Sticky Notes."

### Getting Drinking Water

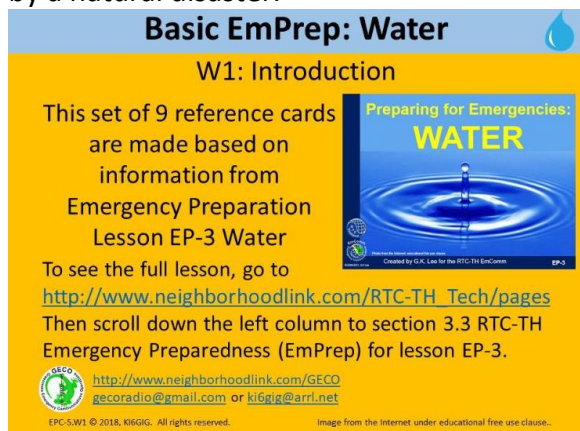
GECO published a paper [EmPrep for the Poor rev 1](#). Poor people cannot afford to put aside supplies or set up disaster kits. Many people struggle to have enough food to eat daily. They need to salvage what they can from the disaster debris to survive. GECO wants HAMS, community groups, and governments to use emergency preparedness lessons as practical in elementary school classrooms. Combining regular math, science, and language classes with basic emergency preparedness can help improve community resilience to natural disasters.

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## EmPrep Water Cards Sets 1 & 2

In September 2018, there were major floods around the world. As with most disasters, after medical attention for life-threatening injuries, drinking water is an immediate need for survival. These cards were posted to on [Greg Lee's](#) Facebook page, [Thai Disaster Preparedness](#), and the [GECO](#) website. The cards were extracted from [EmPrep Lesson EP-3](#).

**Card Set 1, Basic EmPrep: Water** deals with making water "safer" to drink. It won't be to the standard of a well-regulated public water supply in big cities. But it will be safer than most easily accessible water in an area struck by a natural disaster.



**Basic EmPrep: Water**

W1: Introduction

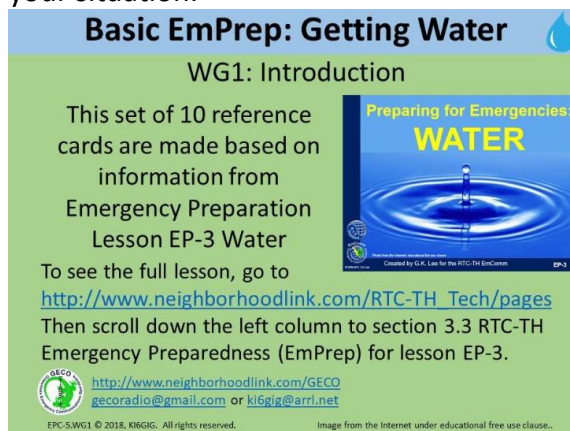
This set of 9 reference cards are made based on information from Emergency Preparation Lesson EP-3 Water

To see the full lesson, go to [http://www.neighborhoodlink.com/RTC-TH\\_Tech/pages](http://www.neighborhoodlink.com/RTC-TH_Tech/pages) Then scroll down the left column to section 3.3 RTC-TH Emergency Preparedness (EmPrep) for lesson EP-3.

<http://www.neighborhoodlink.com/GECO>  
[gecoradio@gmail.com](mailto:gecoradio@gmail.com) or [ki6gig@arri.net](mailto:ki6gig@arri.net)

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**Card Set 2, Basic EmPrep: Getting Water** deals with various ways to get water in a disaster area. The methods used depend on your location and the type of disaster. You need to select methods most appropriate to your situation.



**Basic EmPrep: Getting Water**

WG1: Introduction

This set of 10 reference cards are made based on information from Emergency Preparation Lesson EP-3 Water

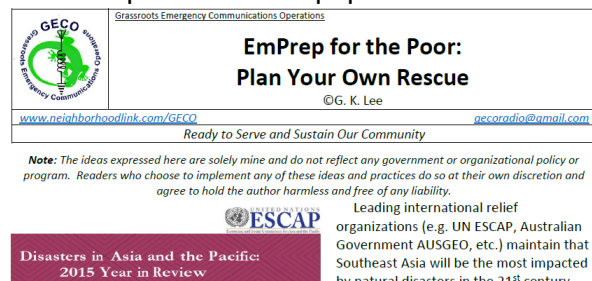
To see the full lesson, go to [http://www.neighborhoodlink.com/RTC-TH\\_Tech/pages](http://www.neighborhoodlink.com/RTC-TH_Tech/pages) Then scroll down the left column to section 3.3 RTC-TH Emergency Preparedness (EmPrep) for lesson EP-3.

<http://www.neighborhoodlink.com/GECO>  
[gecoradio@gmail.com](mailto:gecoradio@gmail.com) or [ki6gig@arri.net](mailto:ki6gig@arri.net)

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## EmPrep for the Poor rev 1

GECO published this paper and sent the information to the UN, World Bank, and IARU.



**EmPrep for the Poor:  
Plan Your Own Rescue**

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[www.neighborhoodlink.com/GECO](http://www.neighborhoodlink.com/GECO) [gecoradio@gmail.com](mailto:gecoradio@gmail.com)

Ready to Serve and Sustain Our Community

**Note:** The ideas expressed here are solely mine and do not reflect any government or organizational policy or program. Readers who choose to implement any of these ideas and practices do so at their own discretion and agree to hold the author harmless and free of any liability.

Leading international relief organizations (e.g. UN ESCAP, Australian Government AUSGEO, etc.) maintain that Southeast Asia will be the most impacted by natural disasters in the 21<sup>st</sup> century.

Disasters in Asia and the Pacific:  
2015 Year in Review

We also posted an announcement on the [QRZ.com Forum](#) and [LinkedIn](#). All GECO materials are available free of charge for non-commercial, educational, and individual study provided the materials are not altered, reproduced commercially for sale, and proper credit is given to the authors. 🌱

## Language Translators Invited to Help

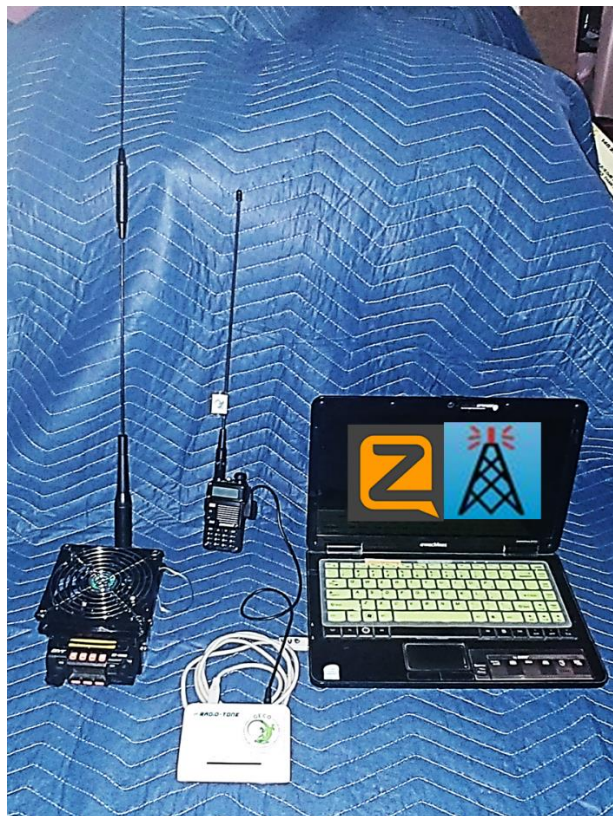
If you are, or know of someone, who has the knowledge and skills to translate our lessons to other languages, please have them contact use at [gecoradio@gmail.com](mailto:gecoradio@gmail.com). We cannot afford to pay. GECO is a community-based, all-volunteer group. Credit for doing the translation will be given (once it is reviewed by a native speaker). This is a good opportunity for volunteers to build their resume and serve humanity. Fully vetted translated lessons will be posted to the GECO website and accessible to all for free.

## Keeping Up with Joe N6WZK: Zello+EchoLink

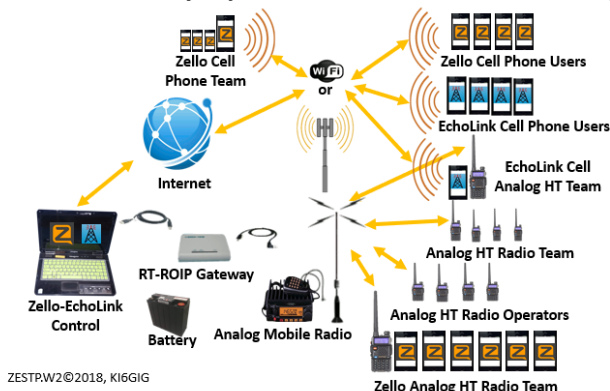
Joe loves to tinker and experiment. One of his experiments involved integrating Zello (a smart phone walkie-talkie app) with EchoLink for portable field use. Yes, you need cell phone / Internet access. But you cannot assume cell phone and Internet access will not be available anymore than you can assume the RF band conditions will always be favorable. Let's put all that stuff aside and get back to having FUN with HAM radio.

Joe is a big fan of 12 VDC power. For field projects, 12 VDC power is key to the portability (and resilience) of the system. The key ingredients:

- A laptop computer with Windows XP (these tend to be available, cheap, and good enough for the job) with a good internal battery.
- A [Radio Tone ROIP-R1](#) gateway unit (the most expensive part of this system) with a microphone cable to match your radio.
- A VHF/UHF transceiver and antenna. You can use an HT or a mobile rig. Be sure the microphone cable will work with the Radio Tone gateway. [Note: The HT uses an integrated battery. A mobile rig will require an external battery.]
- Free Zello program (available to anyone) downloaded and installed on the laptop computer.
- Free EchoLink program (available to licensed HAMs) downloaded and installed on the laptop computer. [Note: Joe uses EchoLink in SysOp mode. A radio is connected to the computer. **This IS HAM radio.**]



**Zello-EchoLink SysOp Tandem Portable Station Set Up**



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*Showing the possible mix of Zello and EchoLink*

When Joe first mentioned this project, my ears perked up. This could be very useful for EmComm. The mantra for EmComm is "in an emergency, use any and all means of communication." There are more cell phone users out there than there are licensed HAMs. So, in a disaster, it is more likely to find people with phones than HAM radios. But Joe's experiment gives HAMs and non-HAMs a way to work together. That seems to give more resilience in disaster recovery.

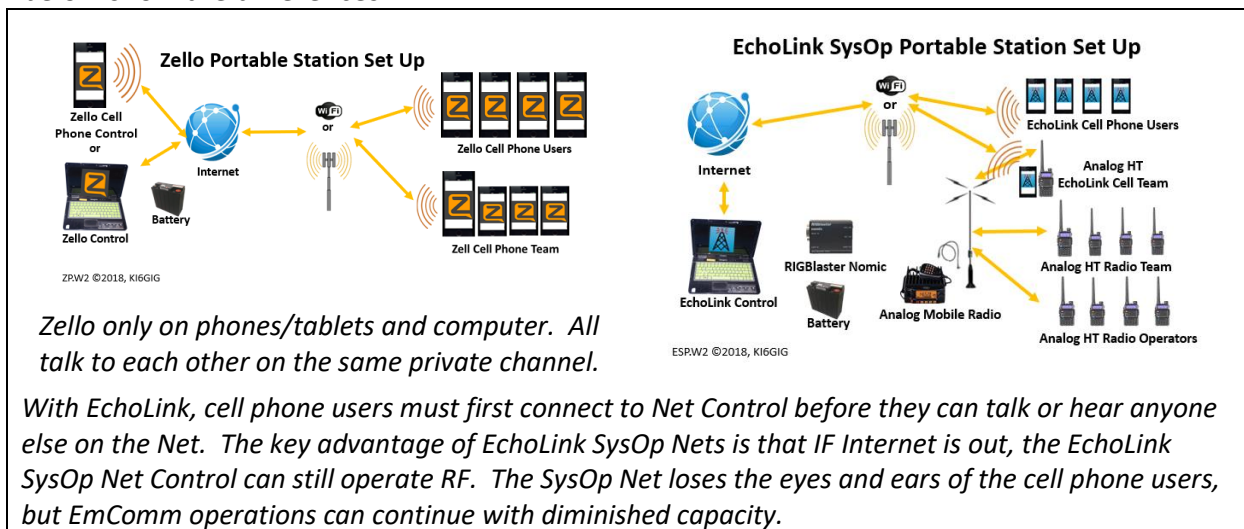


The mix of Zello and EchoLink gives resilience to EmComm operations because it integrates cell phone/tablet-Internet communications with traditional HAM radio.

1. If RF communications is not possible (as was the case in West Bengal, India during the [Telinipara Ferry Pier Collapse](#)), EchoLink may get through. And when the Internet is not available, RF may get through.
2. There are more cell phones/tablets than HAM radios available in the general population. Many newly licensed HAMS cannot afford to buy a radio, but they already have a cell phone or a tablet.
3. Many cell phone/tablet users (non-HAMs) could be recruited, trained or might volunteer to help a HAM in EmComm duties especially when there are few HAM radios in the area.
4. Both Zello and EchoLink can be installed and used on smart cell phones/tablets.

.....A key disadvantage of using EchoLink on a cell phone is initiating contact. An EchoLink phone user can initiate contact to an EchoLink SysOp station to call in a report. Once connected, the phone user can communicate with EchoLink users and SysOp stations (as well as others connected to the SysOp station). But SysOp stations and EchoLink RF and cell phone cannot initiate contact with an EchoLink cell phone/tablet user.

One advantage of Zello over EchoLink on a cell phone/tablet is that private channels (group calls) can be made on Zello. The calls can go from phone/tablet to phone/tablet. And with Joe's set up, Zello can also go out RF to other HAMs (who are using radios or EchoLink on phones/tablets) through the integrated Zello/EchoLink SysOp net control. The diagrams below show the differences.



GECO sees the integration of smart phones via Zello (or possibly other VOIP phone apps) + EchoLink SysOp EmComm as a force multiplier. For example, a HAM with an HT leads a team of 5 EmComm volunteers using cell phones with Zello or EchoLink. The cell phone users extend the eyes and ear of the HT operator. Traffic goes to EchoLink SysOp Net Control. Greater EmComm coverage is accomplished than with a limited supply of radios. 🌱

***This project is being submitted for presentation at [HamFest India 2018](#).  
29-30 December 2018, Bangaluru, India***