

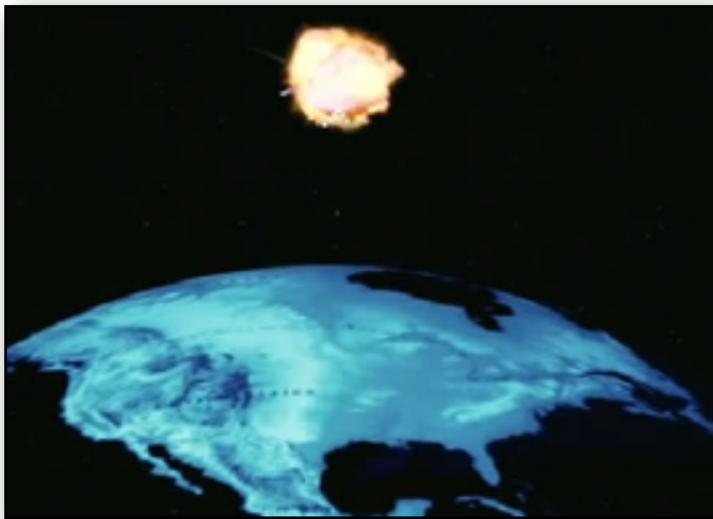


BROOKHAVEN NATIONAL LABORATORY AMATEUR RADIO CLUB NOVEMBER 2013

NEWSLETTER

Electromagnetic Pulse Awareness

What to do before and after the lights go out! by KD5SFQ



An Electromagnetic Pulse or EMP is very mysterious to most people and is often misunderstood. It is also the subject of a great deal of misinformation. This phenomenon has been known for over 50 years but until recently been held as classified information by many governments.

There are two causes of EMP that should concern us. The HEMP caused by a nuclear explosion high up in our atmosphere and by a Coronal Mass Ejection (CME) of our sun. What ever the cause the effects are the same. It is

lights out for us all. The grid will go down and everything with a circuit board will most likely fry.

While there are safeguards than can be taken to protect the grid, only the state of Maine has passed laws to harden it. The cost is estimated at 26 cents per year for each electric customer. A small price to pay the prevent electric Armageddon that could take years to recover from. Unfortunately it is up to the power companies to protect themselves in most states including New York.

In the Shack

We have the new rotor and are waiting for a window so that it can be installed.

Repeater News

The repeater has been relocated to the new location.

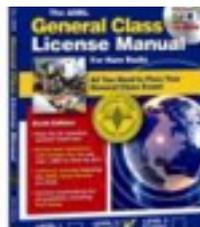
It is also now connected to an emergency power source.

-Gary Stevens
KD5SFQ

General License Class

If you have been putting off upgrading your license to a General Class, here is your chance to get it done.

On January 6th, 2014, we will be offering a class to help you upgrade.



The class will be held M-W-F at noon in the ITD Seminar room located in building 515. Once the class has been completed, we will have a VE session so that you can get on the HF bands you have been waiting for. There is no fee for the class. A book is not mandatory but recommended. To register email

gstevens@bnl.gov



The Power Grid Reality Check

By Gary Stevens,
KD5SFQ

From August 28, 1859 through September 2nd many sun spots and solar flares were observed by scientist around the world. On September 1, 1859 the English Astronomer, Richard Carrington observed the largest solar flare recorded in history. Normally it takes 3 to 4 days for the energy to reach Earth. Because the preceding flares had cleared the way, the CME only took 17.6 hours to reach earth.

This created the largest geomagnetic storm ever recorded. The storm was so intense, the Aurora Borealis was said to be visible near the equator. While it was a remarkable site to witness, it was also quite destructive.



Telegraph systems all over Europe and North America failed. Telegraph operators were electrically shocked. Telegraph lines got so hot that they literally melted. Telegraph offices burned down and poles threw off sparks to surrounding structures. Paper near telegraph keys also caught on fire.

It is an accepted fact that this type of event is likely to happen every one hundred years or so. If that is true, since it has been over 150 years, we are long over due for such a geomagnetic storm. Most experts agree that if such an event were to happen today, it would be extremely catastrophic.

It is now known that a geomagnetic storm of such intensity, creates a magnetic pulse similar to that of a high altitude nuclear explosion. The gamma rays free electrons from the oxygen and nitrogen high in the atmosphere creating a super current that passes through the magnetic field of earth. This produces an EMP wave directed downward towards the grid and all our electronics. Because the pulse is in the nanosecond range, lightning protection is too slow. EMP rated suppressors are available but they cost a few dollars more.

If a Carrington scale event were to happen today, our power grid is guaranteed to go down. Transformers will fail on an order of magnitude. The scope of such destruction would be wide spread and massive. It could take months to years to recover from such an event because our power grid is not protected from EMP events caused by nature or by our enemies.

The problem is that the transformers used on our power grid are no longer manufactured in this country. Most come from China and can take over a year for the larger ones to be constructed and shipped. The rub is that a CME could take our grid down along with China's. That could make matters even more dire because nobody would have power to construct new transformers. In that case the power could be down for decades.

We can't control the weather on Earth nor can we control space weather. The only thing we can do is be aware that such events are likely to happen at some point in the future and be as prepared as we can be.

As you prepare for emergencies, prepare as if the grid will be down for a long period of time or as if it does not exist. The sad truth is, that unless our nations grid is hardened to such events, it could be gone in the blink of an eye. Research this yourself. I'm sure you will come to the same conclusion as I have. It's not a question of if such an event will happen, it is a question of when.



Emergency Actions and Communications after an EMP

by KD5SFQ

While we are no strangers to helping with communications during and after disaster, there are special considerations that we should think about after an Electromagnetic Pulse. First we must understand that no matter what caused the event, power is likely to be down for a protracted period of time. It could be months, years or decades before the transformers can be replaced. A solar geomagnetic storm could effect the entire planet.

Immediately after the event, quickly and quietly gather as many supplies as you can, Grocery stores only carry a 3 day supply of food. Without power, distribution will be no existent. What you have is it and you are on your own. The government does not have the resources to help us. When people start to realize the magnitude of what has happened, panic and riots may follow.

Within 4-7 days, the public water supplies will dwindle to a drip. Before that happens, fill every container you have with water and create a catchment system for rainwater. Each person needs 1 gallon per day. We can only survive 4-6 days without water. A few drops of bleach can chlorinate rain water to make it safe. Boiling is water is even better.

After about a week, people with be desperate enough to steal and even kill for food. Do what you need to do to protect yourself!

If the event was a natural event caused by a geomagnetic storm, it should be safe to use you equipment that survived the EMP pulse. On the other hand, if it was man made, you should keep your equipment safe for a few weeks before using it. An enemy might create a second EMP weeks after to ensure all equipment that has not been destroyed by the first one, will be destroyed by the second.

The real problem is that because transceivers like the Boafeng are cheap, millions of non HAM preppers have purchased them for such events. They may be listening on the airwaves and even masquerading as HAMS. They could also be of questionable character.

The point is do not talk about your cache of supplies on the airwaves or give out your precise location. Such a practice could place you and your family in harms way. That said, while discretion is advised during a protracted grid down situation, we should pass information to each other about the event and other news we learn. Information could not only give us much needed hope, but we can share ideas and survival information that could possibly save us all.

Results of the VE Session held on 11/23/2013 at Brookhaven National Laboratory.

Number of candidates: 23
Number of New Technicians: 21
Average Grade: 31.86 /35

Number of Generals: 7/9
Average Grade: 28.77/35

Number Upgrading to Extra: 1
Grade: 48/50

Number of Generals not upgrading: 3

Number of candidates not obtaining any license class: 1



Low Cost EMP Disaster Insurance.

Protecting a Boafeng UV-R5 in a Nested Faraday Cage

By Gary Stevens
KD5SFQ

We all understand that during any emergency, being able to communicate is vital to the relief effort and for saving lives. But imagine an emergency where even most amateur radio equipment doesn't operate either. Sound far fetched? If you think it is, then perhaps you should read more about the events that I have described in this newsletter and realize that the real possibility of them happening in our lifetime is being discussed by many former generals, CIA directors, NASA and National Security Experts.

As of this writing, the Boafeng UV-5R is being sold for \$30 with free shipping. With a few low cost supplies, you can protect it from a Super EMP event.

First, construct a small cardboard enclosure for the transceiver. Then wrap it with several layers of heavy duty aluminum foil. Place it in a paper bag and insert it into an empty quart size metal paint can. Seal by placing aluminum foil between the top of the can and the lid. Tap with a hammer to get a good seal. Repeat that process by inserting the smaller can in a paper bag and then into the larger can. (Empty cans can be purchased at Home Depot.)

Next line a 6 gallon metal trash can (from Walmart) with cardboard. Then insert the paint cans. It is important to isolate each conductive layer from each other. Do not ground the nested faraday cage. A ground loop can create a path for the destructive energy to reach the electronics.

You can also just nest boxes wrapped in layers of heavy duty aluminum foil and accomplish the same goal.

Calendar

December 14th Holiday Breakfast at the Rocky Point Townhouse Diner

December 17th at 12 noon Club meeting onsite at the Shack.

January 6th, 2014 - General License Class begins

Contributors



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CLUB SECRETARY

YOUR NAME GOES HERE

Let's face it, clubs are more fun when people participate. Share your HAM moments with us by writing a short blurb for the NEWSLETTER.



Just send me your article or chicken scratch. It's all good!