Geiger Counter guide for testing the environment, goods, and food, for Radioactive Contamination!

(Do not just rely on this document, do more research, it is only meant to be a basic guide.)

Counts Per Minute CPM	Micro Sieverts per hour uSv/hr	Milli Sieverts Per year 2 mSv/yr Avg	**Background Radiation Level Guide** for detections one meter above the ground.
10	0.09	0.82	Average background, pre Fukushima Japan 0.081 uSv/hr, Australia 0.17 uSv/hr,
25	0.24	2.06	0.23 uSv/hr world average, USA average 0.34 uSv/hr,
40	0.38	3.3	It is normal to occasionally get short duration peaks above normal background, for any location.
60	0.56	4.94	Larger peaks of longer duration indicate detection of a hot spot, or a cloud of radiation is passing through!
100	0.94	8.23	Detections 1.0 uSv/hr and above you are getting into the dangerous area of detection, shelter or leave immediately!
200	1.88	16.47	Even more hazardous, shelter or leave immediately!

Radioactive contamination ingestion and inhalation is a significant risk factor, if you are getting significant free air detection increases above your normal background for any length of time. For detections in the yellow to red zones, leave the area, or shelter until it passes. **Knowledge of your pre Fukushima / Chernobyl local average background radiation levels is helpful. Any increase in your local background radiation level increases risk.**

http://sccc.org.au/international-radiation-monitoring-stations Updated 22nd September 2017

The CPM to uSv/hr conversion in the chart above is based on the pictured GammaScout Geiger counter tube efficiency. If you have a more sensitive Geiger counter tube, the CPM will be higher for the same uSv/hr value.

(The above chart is based on an original chart created by nukeprofessional. This was to assist a Japanese family he was sending an Inspector Geiger counter to.)

IMPORTANT INFORMATION

An Oncologist in Japan Dr. Atsuo Yanagisawa, has been doing ongoing research on the Fukushima Nuclear Disaster site workers, and found he is getting very good results with Liposomal Vitamin C. It appears to be healing a lot of radiation damage to their bodies. **Liposomal Vitamin C is a combination of vitamin C and lecithin.** This combination seems to improve the up take of vitamin C by 80%! It maybe a good idea for you and your family to research taking this to fortify against the effects of radiation. He has been trying to encourage the Japanese government to educate their people about this treatment.

Part one

http://www.youtube.com/watch?v=Rbm_MH3nSdM&feature=channel&list=UL

Part Two

http://www.youtube.com/watch?v=j4cyzts3lMo&list=ULRbm_MH3nSdM

Part Three (* Liposomal Vitamin C information)

http://www.youtube.com/watch?v=ZYiRo2Oucfo&list=ULj4cyzts3lMo

How to make your own Liposomal Vitamin C, http://www.youtube.com/watch?v=F2eqfiTxDwg&feature=related

Flax seeds - A study from the Perelman School of Medicine at the University of Pennsylvania found that flaxseed may help protect lungs against the damage caused by radiation exposure.

The researchers believe that flaxseed might also have a role in protecting other healthy tissues and organs, before exposure to radiation. It can even significantly reduce damage even after exposure. http://www.greenmedinfo.com/blog/protect-yourself-radiation-flaxseeds

Food Safety Levels

What are safe levels of food contamination?

After Fukushima, the EU, USA, and many other countries dramatically increased the maximum safe allowance for radioactivity in food!

This is how governments have deceived the public about food safety radiation levels worldwide. They first release an article like this one. I am using the EU as an example here.

"EU boosts food import controls after Japanese nuclear disaster. The European Union is to step up controls on food imports from Japan in the wake of the nuclear accident at Fukushima – but stressed there was no evidence that consumers in the region were at risk from radiation-contaminated food.

The EU ruling insists that all products from these prefectures are tested before leaving Japan and said they will be subject to random testing in the bloc. Japanese authorities will have to provide a declaration confirming products do not contain radioactive elements – called radionuclides – that exceed EU maximum levels. The Commission highlighted radionuclides iodine-131, caesium-134 and caesium-137."

http://www.foodproductiondaily.com/Quality-Safety/EU-boosts-food-import-controls-after-Japanese-nuclear-disaster

This makes you feel warm and cosy inside, because you think your government is looking after you. This article "EU boosts food import controls after Japanese nuclear disaster" is a clever, because they then proceed to quietly raise the EU maximum safety levels by 20x for caesium-134 and caesium-137. Governments worldwide have used this same tactic.

http://foodfreedom.wordpress.com/2011/04/04/eu-secretly-ups-cesium-safety-level-in-food-20-fold/

They then tell the public everything is testing below safety levels, nothing to worry about!

Here is another example, Japan this time.
http://www.youtube.com/watch?v=oc6FPIK1VaY

If you do purchase good food testing radiation contamination equipment, look at the old pre Fukushima radioactive food contaminations safety levels, as a possible guide as to what is really safe.

Testing Food for Radioactive Contamination

Radioactive contamination bio-accumulates, particularly in meat, dairy and seafood grown and harvested in radiation contaminated areas. **Ingested radiation from contaminated food, water or air can radiate body cells with high doses of radiation for long periods of time.**

Geiger Counters are not sensitive enough to detect the very small amounts of radioactive contamination in food or liquids that can cause health issues. Unless the food or liquid is considerably contaminated, or has fallout on the surface, your Geiger Counter won't show anything above your normal background level.

As a general rule if your Geiger Counter picks up radioactivity significantly above your background level in food or drink, it is unsafe to eat or drink. That being said, dried food items tested with sensitive Geiger Counters can show higher than background radiation levels. This is because the dehydration process concentrates the small amount of natural radioactive Potassium K40, that is found in all food. If it was just an elevated K40 detection, it would be OK to eat.

We have been through this process here with foods like English Brewers Yeast, Cocoa Powder, coffee, and some other dried powdered foods that have high K40 content. People here in Australia using the Inspector or Inspector EXP Geiger Counters to test these foods, were getting much higher that normal background detections.

The only way to know what is causing this higher detection, and if it is safe to eat, is to test it with better equipment, like a scintillator or better, in a lead and copper lined test chamber. On testing these suspect items with better equipment, it was concluded that these foods only had above average Potassium content, and were safe to eat.

This means if you do get an elevated detection from dehydrated foods with a Geiger counter, you need to test the food with better equipment to ascertain if it is safe to eat.

Safe levels of contamination can vary from a fraction of a Becquerel to 1000 Bq/kg + range, depending on the isotope. Safety levels very from country to country. **(The safety level depends on how many citizens a country is willing to sacrifice to their nuclear God!)** Two parallel Geiger counter SBM20 tubes which are more sensitive than the average Geiger Counter can measure down to approximately 2000 Bq/kg activity.

A scintillator can detect very small amounts of radioactive contamination in food that a Geiger counter can't. To do this a scintillator also needs to be in a lead shielded environment, with the food sample, during testing. The lead shielding is to help screen out background radiation noise.

You really need a scintillator spectrometer or better, to properly test food and liquids for radioactive contamination, plus the skills to use this equipment properly.

After doing research on radiation food testing equipment, I found equipment ranging in price from $1,200, to $18,000. ***Before proceeding asses if your level of food contamination risk warrants purchasing this type of expensive equipment.*** **Note: prices quoted and models listed here will vary with time.**

GammaSpectacular kits start at $1,200. These kits are the cheapest of the units featured in this guide. The kits can be used with a variety of free software that is downloadable off the Internet. The free software will provide you with individual isotope identification, and contamination levels, like the more expensive AustralRAD Becquerel Monitor described below.

You will also need a computer, plus a lead and copper shielded test chamber. A DIY test chamber may cost around $300+ or more in lead and copper alone. It will take time to set up and learn how to use the equipment, and software. You can find Info here on the GammaSpectactular kits.

Polimaster PM1406, price $2,590.00 + $75 shipping. The Polimaster PM1406 appears to be an easy to use, nice compact unit. Interestingly, with this unit you can adjust the food safety level in the testing software provided, to your country's safety standard.

Demonstration video. http://www.youtube.com/watch?v=9HkaTHgfeE0

If you are considering purchasing this unit, I would suggest you also purchase the optional compact lead test chamber. It is an extra cost, but it will greatly improve isotope detection sensitivity. Overall the GammaSpectacular kits are more sensitive than the Polimaster, and they can also identify more isotope types. The draw back for the average person is the level of technical skill and effort involved in setting up GammaSpectacular kits for DIY food testing.

http://shop.polimaster.us/food-contamination-monitor-pm-1406/

Berthold Australia LB 200 rapid food monitoring, price $11,000, here is the PDF info sheet. The Berthold Australia LB 200 Rapid food monitor is probably the easiest to use. It just tells you the Becquerel contamination amount on a screen, and also comes with a lead shielded testing chamber.

Gammasonics AustralRAD Becquerel Monitor, price $18,000, here is the PDF info sheet. The Gammasonics AustralRAD Becquerel Monitor provides you with an indication of individual isotope contamination levels. It also is supplied with a lead testing chamber, computer laptop and software.

Berkeley Nucleonics Sam 940 2x2 model is usable as a environmental, and food tester, $11,800. A portable lead + copper test chamber is available at an extra cost.

http://www.berkeleynucleonics.com/products/model_940.html

(If you have suggestions regarding food testing units to add to this guide, post them into this forum for consideration. http://enenews.com/forum-post-radiation-monitoring-data-april-30-2012-present **)**

Using a Geiger Counter for Food Testing

If you are going to test food with a Geiger Counter, because that is all you have, here are some suggestions to maximise a Geiger Counter's ability to detect food radioactive contamination.

Think of background radiation as noise. The lower the noise the more likely you are to hear the sound of a radioactive isotope's whisper.

1. Find a location in your house with the lowest background levels. A brick and tile building may have twice or more higher background levels of radiation than a wooden building. It may be better to do testing out on a veranda, if you live in a brick and tile building that has higher inside than outside background readings.

2. Don't do food testing in a basement or attic, where Radon gas may have concentrated over time. Testing higher off the ground can also reduce background levels. Never do food testing on tile, granite, concrete, or brick, as these have elevated levels of radiation in them. Keep the Geiger Counter away from mobile phones.

3. Do your testing when the local background level is lowest. This is generally just before sunrise, so the the earlier in the morning, the better. My counts per minute in the morning can be 9, by midday 16 or more.

4. Set your Geiger counter to detect Alpha, Beta and Gamma radiation all at once, if possible. Don't place it directly against fruit and vegetables etc. (In contaminated areas the surface contact could contaminate your Geiger counter and prevent it from providing accurate measurements in the future.) For Beta or Gamma radiation, place your Geiger counter or pancake probe as close to the food as possible.

Wrap the Geiger counter or pancake probe in cling wrap, or place it in a water proof plastic bag, right next to, and touching the food or liquid container. Remove the Geiger counter from the plastic cover after testing has finished. Never leave the Geiger counter stored in the plastic bag, or wrapped in cling wrap.

If you are testing for Alpha radiation contamination you can't use the plastic protection. Have your Geiger counter switched to the Alpha detection setting. Then place the Geiger counter close to, but not touching the object. Alternatively, use a small spacer to keep the Geiger counter from touching the object under test.

5. Use as large a quantity of the food or liquid as you can, to do the test. I try to use 1kg (2lbs) amounts. The larger the volume the more radiation will be released by a given source.

Use long count testing. Test using counts per minute setting, for a set time. **Set the count test time for as long as practicable. The longer the testing time the more likely contamination will show up as a significant number of counts above your normal background.** Example, if you ran the test for 60 minutes divide the number of counts by 60 to get counts per minute.

Compare that number with your average background counts per minute for that time of day. If there is a significant difference you may have detected radioactive contamination.

6. Build a lead testing chamber to shield out as much background radiation as you can. Place your Geiger counter or pancake probe in the the testing chamber with the food or liquid sample. Lead is expensive and toxic, build it outside the house, plus use rubber gloves and a face mask when handling or touching it.

Once the chamber is built, seal the lead with paint or another metal cover. You can purchase sheets or rolls of lead roofing which are already painted. The walls of your testing chamber will need to be at least 10mm (1/3") thick. The thicker the better.

NOTE: If you do build a lead food testing chamber make sure you don't have the lead lid rubbing against lead creating lead dust as you open and close the lid. If lead gets on your food it is toxic. Also, lining the food testing chamber with a copper metal inner layer helps to shield your detector against secondary X-rays produced by Gamma radiation hitting the lead layer.

I have built an experimental lead chamber and used a GammaScout Geiger counter, for testing food and liquids, using the principles above to maximise its sensitivity, to see what I could achieve. On page 5 are a couple of photos of the lead testing chamber. It has a plastic liner and lip, plus a metal tray lid to protect against lead contamination. The rolls of lead sheeting to build this basic testing chamber cost $300.

The shielding used here is a about the minimum thickness to use. The thicker, the better.

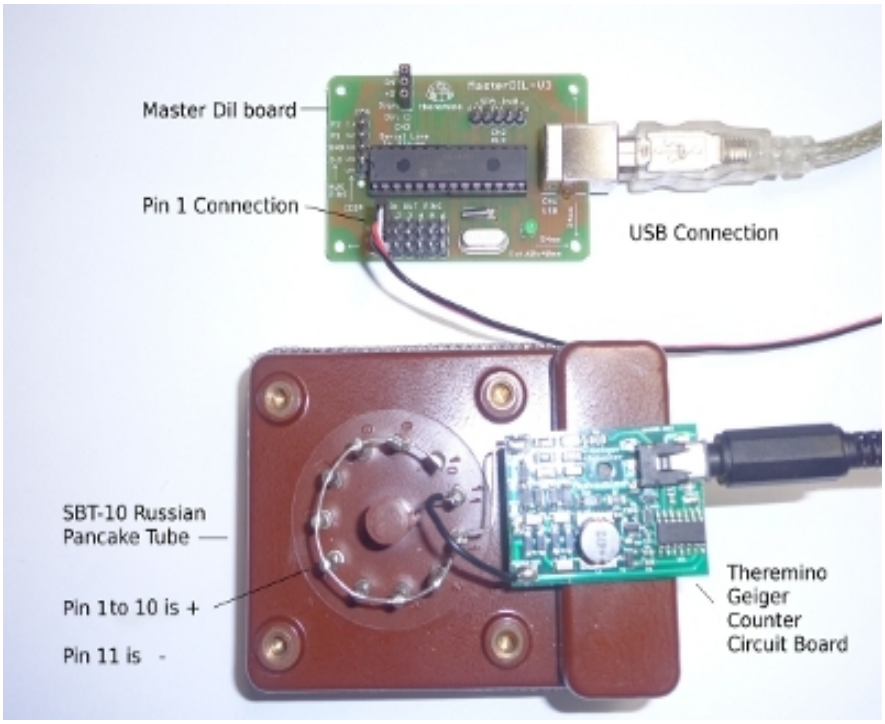
An Inspector Exp Geiger Counter with its sensitive pancake probe will be more likely to detect radioactive food contamination than the average Geiger Counter. http://www.geigercounters.com/

Free guide on how to set up a DIY food testing lab, for radioactive contamination.

http://sccc.org.au/wp-content/uploads/2012/06/How-to-set-up-a-home-or-community-food-testing-lab-for-radioactive-contamination.pdf

Geiger Counter kits

Kits are a good possibility for those of you on a tight budget. They can cost a fraction of the cost of a good commercial unit, and perform just as well. You will need some technical skills to put these kits together.



The Theremino Geiger Kit is probably the easiest to put together. It makes a very cheap kit that has already assembled circuitry. You do need a computer to use it though. What you get is a lab quality set up for under $100, if you used a basic tube like an SBM20. It has on-screen charting, timed counts, data logging, and an on screen analogue meter.

It is not as portable as a hand held Geiger Counter. It could be set up on a small netbook computer for portability, and it can be used with up to a 5m long USB cable.

There are also other kits available that are very cost effective alternatives. Here is another very popular kit, https://sites.google.com/site/diygeigercounter/home

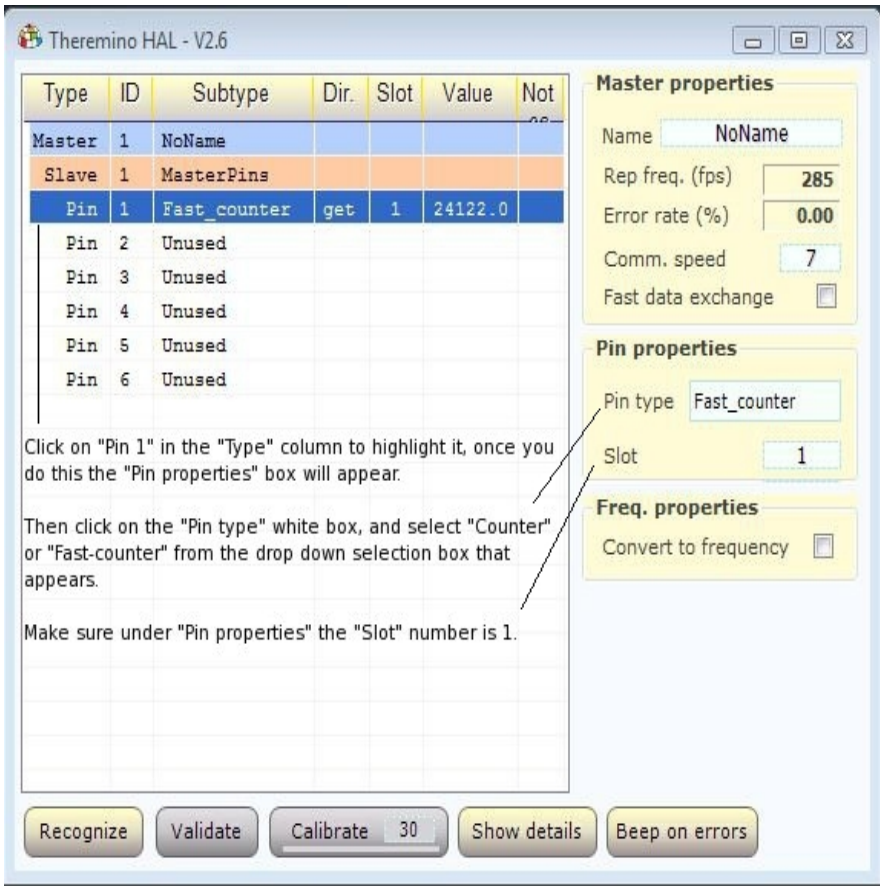
Price: Theremino Master DIL: 19.90
(Note: There are two Theremino Geiger boards available, a 400v and 500V version)
Euro - Available Theremino Geiger Adapter: 19.90 Euro - Available extension cable (30cm) 0.50 Euro Plus postages Charges Shipping (Italy) 2.00 -> 5.00 priority mail -> registered mail 10.00 It can take around 2 weeks to turn up.

You can connect multiple tubes in parallel to increase sensitivity. In this photo there is the pre-built Geiger Counter circuit board with different voltage taps, plus the Master Dil board.

The Master Dil board allows what ever sensor software you are using, in this case the Geiger software, to communicate with sensor circuit board via USB, and collect the data. The kit doesn't come with a tube. For this build I used a sensitive SBT-10 Russian pancake tube pictured on page 5. It can be purchased off ebay. The SBT-10 tube needs 265 to 320 volts to work properly. Putting the kit together was the easy part, just a couple wires to solder.

It was important to check the tap voltages with a multimeter before connecting your tube, to check that the board markings are correct. You need to install both the Theremino Geiger Program and the Theremino HAL program. Remember to click the American flag at the top right hand corner of the page, to get the English translation on this Italian site. The instructions aren't the best.

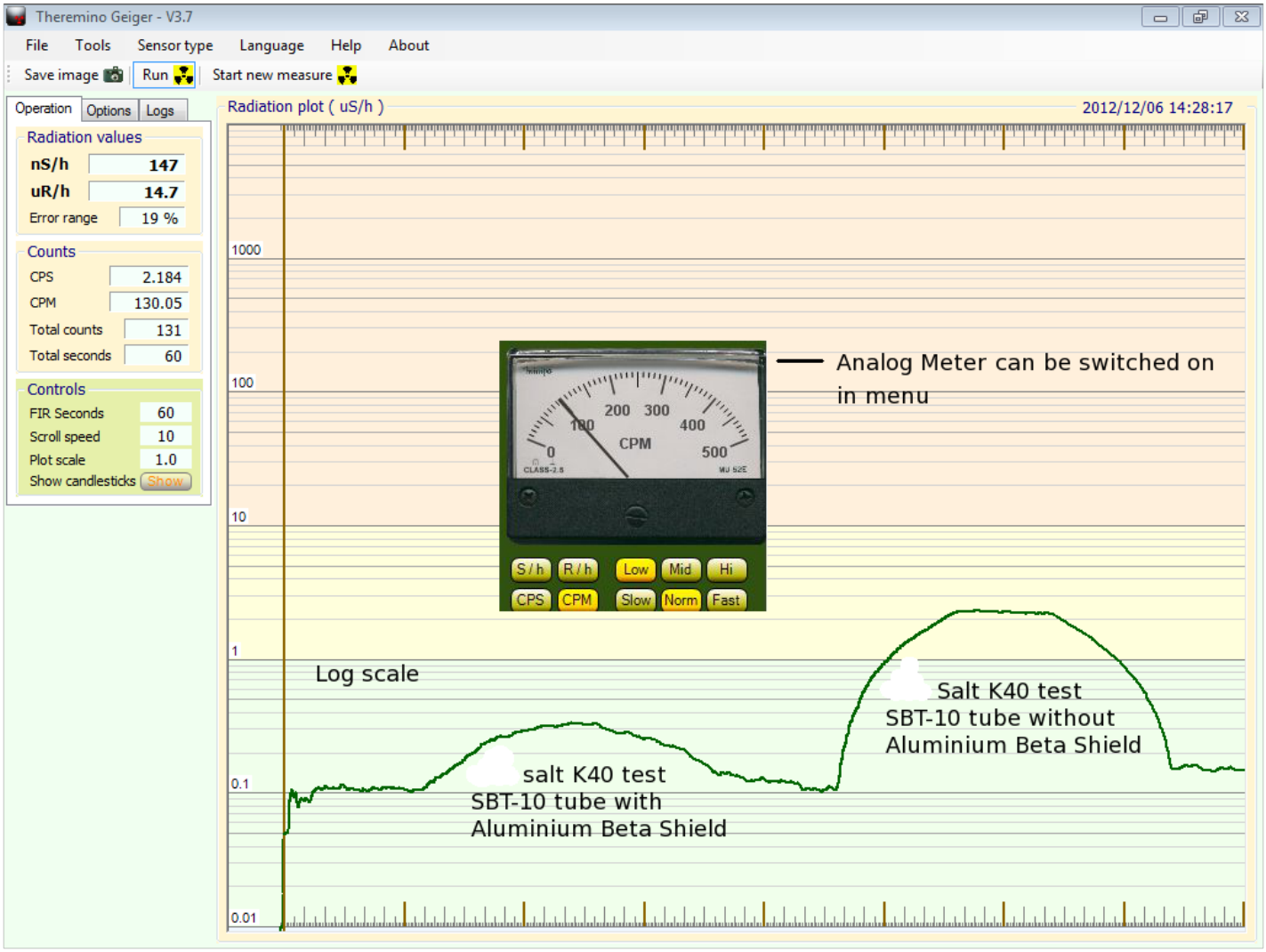
Took me a while to work out the importance of the Hal program. It is the heart of this set up, and it allows you to run multiple different types of sensor circuits off one Master Dil board. So you could also run a Radon sensor circuit off the Master Dil, at the same time as recording background radiation readings.



Once installed, open the Theremino Hal program and highlight “Pin 1”. The pin properties will then appear. Click in the “Pin Type” white box that now appears, to get a selection box and select “Counter” or “Fast_counter”. Now open the Theremino Geiger software, and if everything is wired correctly, it should be working. You will now need to customise the settings to suit your type of Geiger tube.

This system is very powerful and simple, once you get the hang of it. The Theremino Geiger program allows you to take screen shots of the plot area, or plot screen, plus set up settings. The program can also be set up to send the charts or logged data to a web site via FTP, at timed intervals.

The Theremino charted screen shot on page 7 shows the Russian SBT-10 pancake tube test of a 100 grams of pure Potassium Chloride. The charting scale is log. This is a test of the Beta to Gamma ratio of radioactive Potassium (K40) in Potassium Chloride. The K40 ratio is 89% Beta to 11% Gamma. The first plot peak at 0.30 uSv/hr is the SBT-10 with thick Aluminium beta shield in place. The second peak at 2.30 uSv/hr is of SBT-10 with beta shield removed.



Still experimenting. http://www.theremino.com/en/downloads/documentation/questions-and-answers/
You will also need to select the correct language and other settings like Geiger tube type, once you install the software. Read the Theremino Geiger Counter software help files in the program. I have concentrated on the Theremino Geiger kit because I think it is one of the easiest to build, and set up. Particularly by those who are not very technically minded. You also get sophisticated charting software that makes it easy to do food and environmental testing.

With a pancake tube you end up with very sensitive Geiger Counter at the fraction of the cost of a commercial unit. **Make sure you get a tube that is suitable to use with this kit.** The Theremino Geiger software is opensource, so it can be improved at any time, by anyone with programming skills. This kit could be used to easily set up a cost effective community radiation monitoring network.

This mobile phone app appears to be the most cost effective way to turn most mobile phones into an effective Geiger counter. We have no financial association with the app maker, and only provide a reference to it as most people have mobile phones now, http://rdklein.de/html/radioactivity.html

Video review, plus how it works.

http://rdklein.de/html/radioa_videos.html

If you own a Geiger Counter, test everything that comes into you home!

I detected hot particles on a parcel delivery, plus hot jewellery in 2012, with my Geiger counter. A friend picked up a contaminated batch of tea bags. Another detection in 2012 reported to me was found on newly purchased plastic buckets. In 2011 another friend detected contamination on a newly purchased music CD, and a chocolate bar. If a Geiger Counter picks up food contamination, it is generally pretty contaminated. Once again, **you just have to test everything coming into your house now.**

These Geiger Counter radioactive contamination detections were all made by people in the southern hemisphere! I have seen numerous reports of people all around the world detecting radioactive contamination in products such as cars, car tyres, metal plate holders in Korea, and metal tissue boxes in America.

For this type of radioactive contamination screening, switch the Geiger Counter to the Alpha detection setting and hold the Geiger counter detection window as close as possible to the food or product, without touching it, and move the Geiger counter all around the item slowly and methodically, covering as much surface area as you can.

Turning on the Geiger Counter ticker can be a great help, because the auditory response can be quicker indicator than the meter. This allows you to hone in on hot spots that indicated radioactive contamination. If you get a detection, hold your Geiger counter with the precision of a surgeon, then narrow down on the hot area to get a proper radiation reading.

This is where a Geiger Counter with a larger sensitive pancake probe can be much quicker at screening. It has a much larger detection window, so you can cover a bigger surface area more quickly.

If the contamination in your area is significant, you may need to learn quarantine techniques, screening all items outside the house before taking them inside. Always do you rain swabs tests with gloves on, and be careful not to touch anything else including you face, until you remove them. You don't know what you are coming in contact with.

Take care when collecting rain swabs!

After rain, timed Counts Per Minute measurement (CPM) Geiger counter testing of a paper towel wiped over a wet car bonnet, can be an effective way to test for Radon decay daughter washout, and other radioactive contaminants. Unless you have a nuclear event happening, an initial high detection that decays quickly in a few hours, indicates the probable presence of Radon decay daughters. If it is mainly Radon washout, most of it will have decayed away in about 12 hours.

If it is a large multi uSv/hr Radon detection, it can take longer for these daughter isotopes to decay to near normal background levels. After 24 hours, a rain swab still showing above background levels would indicate the possible presence of other radioactive contaminants. Then you will need a scintillator or better, to identify the small traces of isotope contamination.

Here are suggestions to get the best rain swab results. It is important to wear surgical gloves or equivalent, because you don't know what could be in the rain, particularly after a nuclear accident! Also, remember to keep you hands away from you face, and avoid leaning on the wet car while collecting the swab.

a. When you do a rain swab test, use a couple of paper towels.

b. Use both sides to wipe over the wet car bonnet.

c. Straighten them out close to the original shape.

d. Then fold it into a shape suitable for the Geiger testing.

e. While you still have your gloves on, squeeze out as much water as you can.

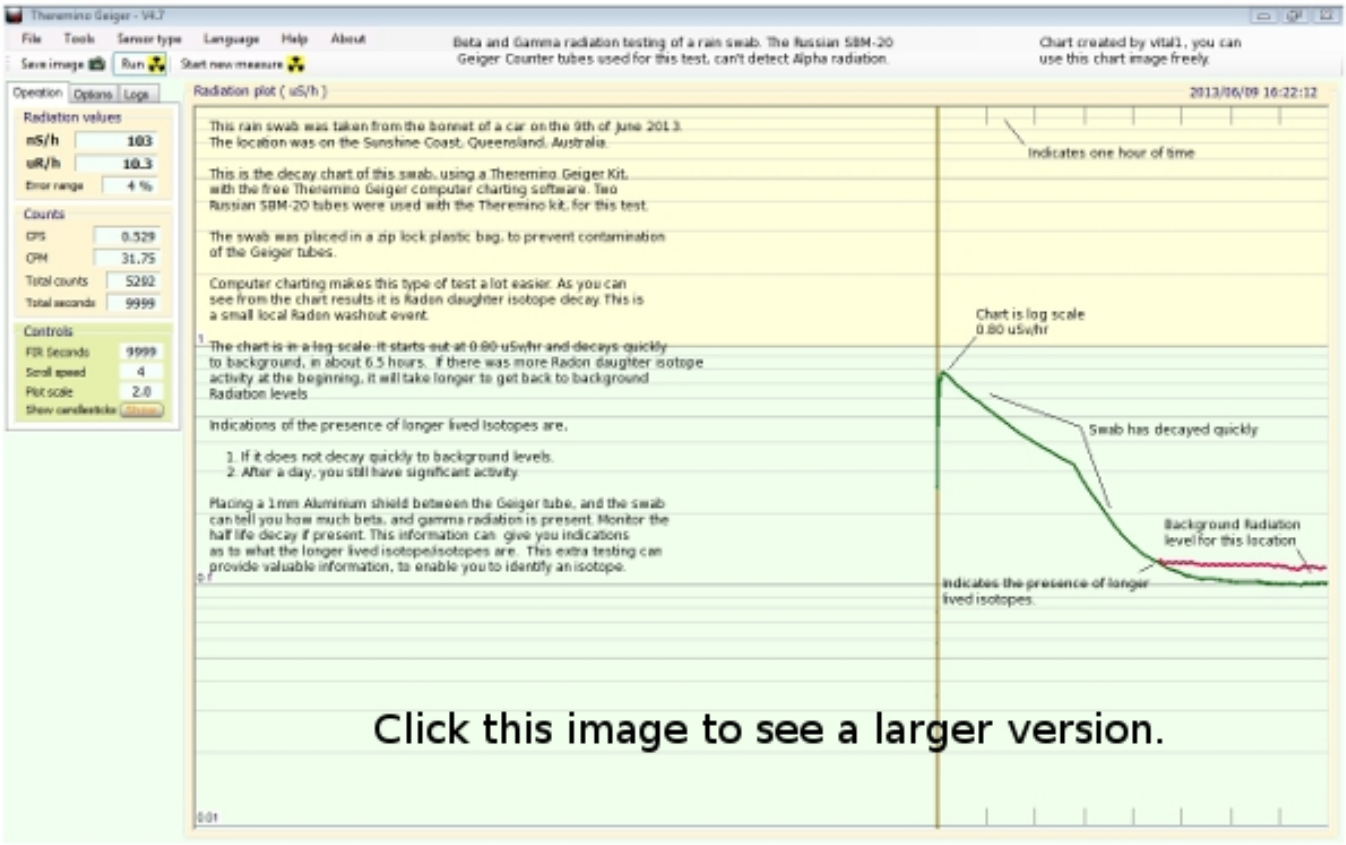
g. Then place it in the zip lock bag. Get someone to hold the bag open for you, so you I don't touch the outside of the plastic bag.

h. While outside, take the gloves off, then squeeze out the air in the plastic bag, and seal it. Afterwards, wash your hands and arms, to remove any contamination you may have accidentally picked up.

i. Label, date, and provide the location of collection information.

The flat rectangular shape makes it easier to test, and removing as much water as possible improves sensitivity. Labelling is important, because you or someone else may be able to do further testing, with better equipment, in the future.

Having a Geiger counter with a computer charting facility is a great help. The chart on page 9 is of Radon daughter washout decay, captured in a rain swab. Most of the Radon decay daughters had decayed away in 6 hours.

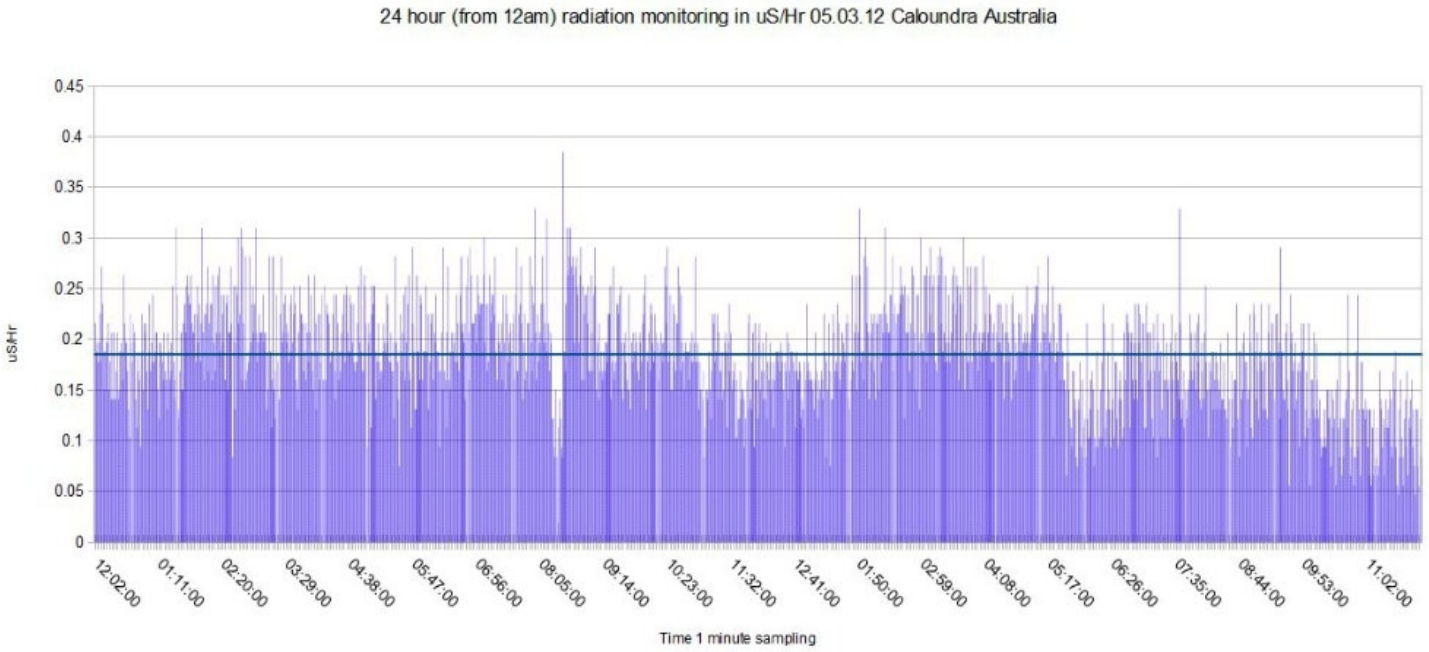


Your Geiger Counter Can Do More!

Charted local background radiation levels logged by your Geiger counter are a great way to display background radiation levels over time. A Geiger counter that can data log can be set to record events in intervals of seconds, minutes, hours, days or weeks. Unfortunately, there is a time gap between each recording event, so it is not real time recording. That is why a visual observation at the time may show peak levels that are not recorded by your Geiger counter data logger.

This can be clearly seen by the fact that the chart below for this 5th March 2012 event I recorded, does not show a peak of up to 0.63 uSv/hr which I observed visually on that day.

(**This is an example of a 24 hour chart.** The dark blue line through the chart is the 24 hour average.)



This peak triggered my Geiger Counter alarm and was clearly seen in real time on the display of my Geiger counter on that day. The largest peak recorded by my Geiger counter as shown in the chart was 0.38 uS/Hr.

What does this mean? Any digitally recorded information has time gaps, and may not record important information. The bigger the time gap interval between data interval recordings, the more information will be lost.

I have set my Geiger counter to record in one minute intervals, and to alarm if my local background level goes above 0.30 uSv/hr. This is 3x my normal average background prior to 3/11. So if the alarm goes off I can start to make visual observations.

You can't be watching your Geiger counter 24hrs a day, so that's where digital data logging is a useful tool. You can download the digitally recorded information and then chart it using charting software provided by the Geiger counter manufacturer, or download free charting software off the Internet. ***So if you have a Geiger counter that has data logging capabilities I suggest you learn how to use it.***

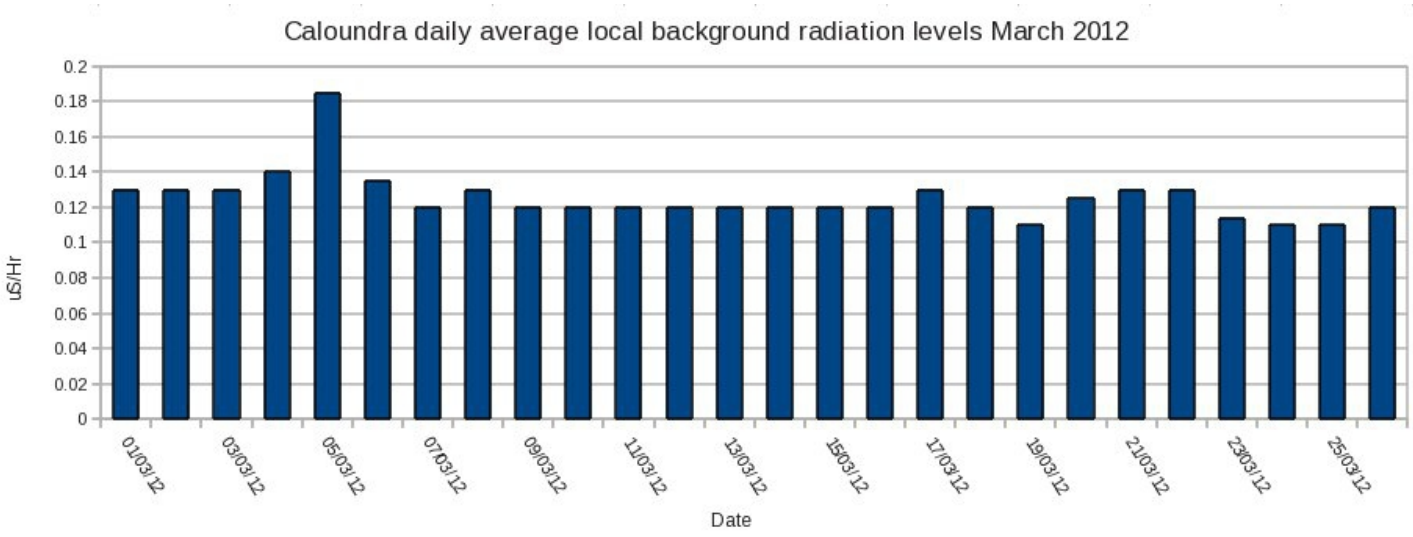
There is something else very important that our Geiger counter data charting can tell you about radiation. That is whether your local background radiation contamination level is increasing gradually over a long period of time.

The way to find this out is to take average local background readings every day and chart it. You don't need to do this on a computer. If you don't have a computer, or the skills to use computer charting software, you can simply use a ruler and pencil to create a chart. Using charting paper you can get from your local stationers is better. A simple join the dots chart is good enough.

Most digital Geiger counters will display the day's average background with the press of a button. If your Geiger counter starts calculating the average from 12 am the night before, do this. At a set time every day just before bed time, the later the better, press the button to display the days average. Mark the date and amount on your chart. If you do this every day, it will give you a good idea what is happening with your local background radiation levels over time.

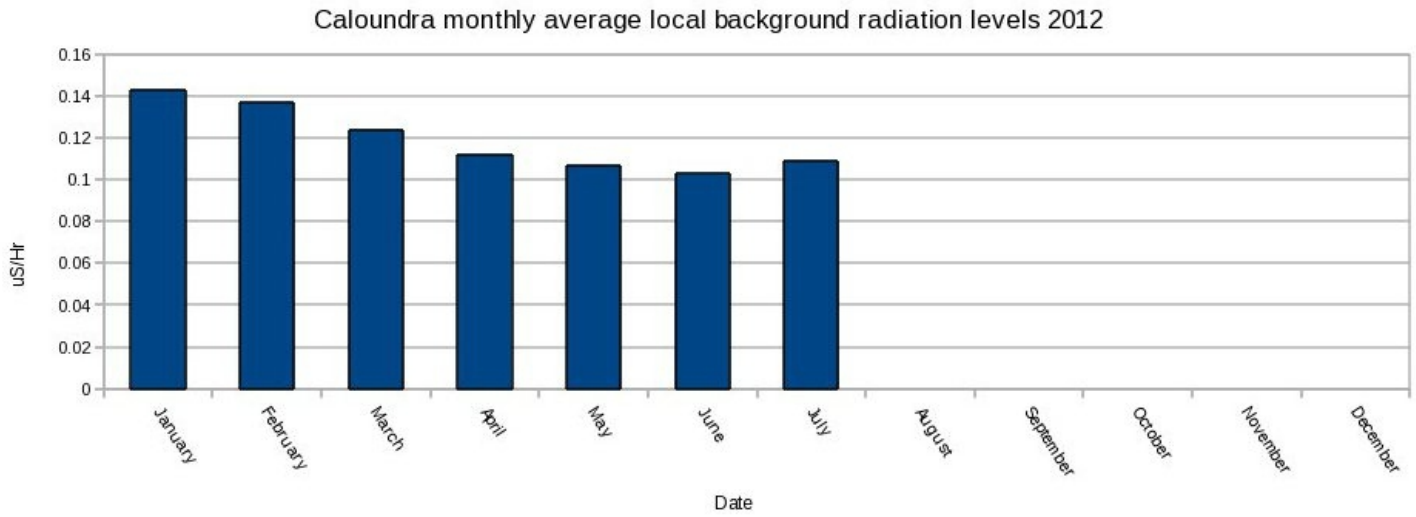
If you have computer skills, download the raw data from your Geiger counter into a spreadsheet. OpenOffice is a free office suite that has a great spreadsheet program. I use OpenOffice to create the charts you see in my posts. Once the data is imported into the spreadsheet you can set up a formula to calculate the 24 hour daily average background radiation level, for each day. With this information you can create a chart of the 24 hour day averages for each day of the year.

Day average chart example:



Using this collected information you can now also calculate the monthly averages to create a monthly average chart, and eventually yearly charts.

Monthly average chart example:



If you go to this web site you can downloaded three free charting templates. Available are a 24 hour, Day and Monthly charting templates, complete with auto calculating formulas and chart creation. They are in OpenOffice or Microsoft Excel file formats. The site and the charting templates provide a lot of help, to set up long term local background radiation charting.

http://sccc.org.au/charting-templates

All this charting will pay off in the end, because you will clearly see if your local background is slowly increasing over time. Peak detection is only part of the story. Without long term detailed charting, you won't know if your community's monthly or yearly radiation exposure is increasing.

Here is a list of International Monitoring Stations that monitor background levels in real time. It can be a very helpful resource for tracking nuclear events, http://sccc.org.au/international-radiation-monitoring-stations

Geiger Counter Use Tips

Firstly, purchase the most sensitive Geiger Counter you can afford, that can detect, Alpha, Beta, and Gamma radiation. Learn the difference between Alpha, Beta, and Gamma radiation. For normal background level detection use, leave it in the Gamma + Beta radiation detection setting. You increase the risk of damage to your Geiger counter tube if you leave it in the Alpha detection setting all the time. This is because there is no shielding in place to protect the Geiger tube in this setting.

Keep Your Geiger Counter Clean!

Important if your environment is becoming contaminated. If you are going to place your Geiger counter on **snowy, wet, or dusty surfaces**, make sure your Geiger counter is in a sealed zip lock plastic bag, or use a spacer if testing for alpha radiation. This is to protect it from contamination, and the elements. After use, wash your hands and put on a pair of surgical gloves to remove it from the bag. Never leave the Geiger counter in the plastic bag.

Use one hand to hold the bag and the other to remove the Geiger Counter carefully. Then throw the plastic bag away, and remove the gloves. **For normal outside free air measurements, it doesn't need to be in a plastic bag, unless it is raining.**

If you start getting detections above 0.5 uSv/hr consider if it is safe to approach a source. 1.0uSv/hr and above would be considered high, and getting into the danger zone. **Radioactive dust inhalation is a very big risk in any area where you detect above your normal background radiation.**

Testing for Alpha radiation needs a bit more care. Alpha radiation can be stopped by a plastic bag. If you are testing a liquid, the container holding the liquid can stop it. Alpha is a helium-4 nucleus, so a few centimetres of air, a piece of paper or your skin can stop it. The thick skin of some vegetables or fruit can also stop it. Even though this may be the case externally, if ingested it can be 20 to 100 times more dangerous than internally ingested Beta and Gamma radiation sources.

If you want to test food or goods for alpha radiation you should have your Geiger counter switched to the alpha detection setting, minus the plastic or cling wrap protection. Hold the Geiger counter as close to the food or item as possible without touching it. Then move the Geiger counter all around the food item slowly and methodically.

If you are doing alpha radiation testing out in the street, you will need to hold the Geiger counter as close to the source as possible without touching it. Placing the Geiger counter directly on wet or dusty radioactive contaminated surfaces could contaminate it. Hold your Geiger Counter as close to the source without touching it, or use a spacer to keep the Geiger Counter a short distance away from contact. I have seen people use a couple of chop sticks as a spacer. Don't use the spacer again if you detect contamination.

Radiation Emissions Can Be Highly Directional.

It is important that you move your Geiger counter over the test object, or around a test area slowly and methodically, covering three dimensions. Emissions may come off the object at an angle not necessarily straight up. If you get a detection hold your Geiger counter with the precision of a surgeon, then narrow down on the hot area to get a proper radiation reading.

How to improve atmospheric detections

Having a low background radiation level to start with is an big advantage, because you are more likely to pick up changes that others will miss, if their background levels are higher. Get a feel for your Geiger Counter. Knowing what is the average historical background level you would expect for your area is important. You then have a baseline from which to work.

Having a good knowledge of local weather patterns is also important to understand background radiation detections. Becoming a meteorologist is an important part of detecting radiation events, particularly if you live near nuclear power stations. There are a lot meteorological sites on the Internet where you can get local wind direction information. If you get a detection, note which direction the wind is coming from.

I know that all my radioactive cloud detections have occurred when the wind has been coming from the north, or north north east, by watching the weather. You need to build up a knowledge base of local weather and background radiation information. Watching your Geiger counter meter level go up and down will not provide you with the bigger picture.

Notes

Suggested web sites to visit

For the latest formation on the Fukushima Nuclear disaster, go to http://www.enenews.com http://fairewinds.com http://www.enviroreporter.com/ and http://fukushima-diary.com To get a better understanding of the affects of radiation on the body view ***Dr Christopher Busby*** and ***Dr Helen Caldicott*** videos on Youtube.

List of International radiation monitoring sites.

http://sccc.org.au/monitoring/sunshinecoast-monitoring-station.html

Free guide on how to set up a DIY food testing lab, for radioactive contamination.

http://sccc.org.au/wp-content/uploads/2012/06/How-to-set-up-a-home-or-community-food-testing-lab-for-radioactive-contamination.pdf

Geiger Counter User Guide

http://technologypals.com.au/wp-content/uploads/2012/03/Using-a-Geiger-Counter-to-test-food-for-Radioactive-Contamination.pdf

Nukpro's Shelter-in-Place in a Radiation Emergency, or just any old Run of the Mill emergency. (updated 3rd August July 2017)

With the World becoming more unstable by the day, it would be wise to have some preparations in place. If you print it out you can use the check list provided.

It also has a notes section with links to free resources to enable you to do more research on the subject.

http://sccc.org.au/wp-content/uploads/2017/05/Nukepro-Shelter-In-Place.pdf

Myths about Geiger Counters, a video by anti-proton, is worth watching.

http://www.youtube.com/watch?v=EMGF-nnNdL8

http://www.anti-proton.com for great videos about radiation, plus using a scintillator, or Geiger counter.

Enthusiast Groups

http://tech.groups.yahoo.com/group/GeigerCounterEnthusiasts/

http://tech.groups.yahoo.com/group/GammaSpectrometry/

Information to get people up to speed on the seriousness of the Fukushima Nuclear Disaster.

Get the message out there about how serious the Fukushima nuclear disaster is, quickly, and efficiently. You don't need to explain anything, just distribute the lifesaver.pdf (or podcasts below), hand it out, mailbox it, or email it. Put it everywhere, libraries, notice boards, web pages, forums, Facebook, and tweet! Think outside the box.

http://technologypals.com.au/wp-content/uploads/2012/03/lifesaver.pdf

Podcasts

Encourage friends and family listen to these podcasts on New Zealand Radio Station GreenPlanetFM. Interviews **on a radio station carry more weight when trying to convince friends, and relatives of the** seriousness of the Fukushima nuclear disaster. I**t has with my friends and family. So if you can use these as an educational resource, please do.**

Survival

http://www.greenplanetfm.com/members/greenradio/blog/VIEW/00000001/00000261/Peter-Daley-Australian-Whistleblower-on-the-Fukushima-Radiation-Crises--Survival.html

Crisis

http://www.greenplanetfm.com/members/greenradio/blog/VIEW/00000001/00000193/Peter-Daley-on-the-Fukushima-Radiation-Cloud-over-Australia–NZ.html#00000193

Free Book On Stress Management

In the present circumstances this free book may also be a great help to you.

http://technologypals.com.au/free-books

Nuclear War Survival Skills

Here is a Ted-Ed youtube video**,** "Surviving a nuclear attack" by Irwin Redlener

https://www.youtube.com/watch?v=tW7IgKJWtqk

Free online book, "Nuclear War Survival Skills."

http://oism.org/nwss/nwss.pdf

The US government provides more extensive information on the subject here.

http://www.governmentattic.org/21docs/InTimeOfEmergency_1968.pdf