

From the book:

Planet X Forecast and 2012 Survival Guide

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The following excerpt from pages 160-165 in the book provide information about types of things emitted from the sun and information about materials that help block exposure from solar emissions.

Excerpt:

Solar Storm Nasties

Nasty is the only word that describes X-Rays, UV Radiation, Gamma Rays, EMP and Magnetic storms spewed out by our solar storms. In terms of the human race and the electrically powered infrastructure that shapes our daily lives, there is no positive message here. That is why you need to become familiar with the following solar storm nasties:

- **Gamma Radiation:** Generated during a solar storm, it is a lethal combination of a short wavelength and a high-energy content. Like X-rays on steroids, gamma radiation causes serious damage when absorbed by living cells.
- **X-Ray Radiation:** The actual term applies to man-made radiation, but is used in science to describe radiation that occurs naturally within the same bandwidth. X-rays are one form of ionizing radiation, which can be destructive to any biological organisms and cause DNA damage and mutations.
- **Ultraviolet (UV) Radiation:** The most dangerous high-energy variant of ultraviolet light. Prolonged exposure can result in acute and chronic health effects on the skin, eyes and immune system.
- **Electromagnetic pulse (EMP):** A short fierce pulse of electromagnetic energy that occurs across several bandwidths. With specific bandwidths, longer durations produce more severe results. However, with an EMP, the opposite holds true. The shorter the pulse, the more severe it becomes. While devastating to electronic devices, it passes harmlessly through living cells.
- **Magnetic Storm:** Caused when the charged particles from a CME impact upon the outer part of the Earth's magnetic field and create a worldwide magnetic disturbance.

Solar flares and CME's (Coronal Mass Ejection) each have their own witches' brew of solar storm nasties, and some have a very short time to Earth of just minutes. Others takes hours. Use the table below to see what is going to hit you, when and how hard.

Effect	Risk	Solar Flare Class	CME	Time to Earth	Event Duration
X-Rays		A to Y	Severe	8.3 Minutes	1-3 Hours
	Human <i>Cancer and Cataracts</i>	The primary concern is the carcinogenic effect. The organs most vulnerable are the thyroid and reproductive organs. (Testicular canvers for men and ovarian cancers for women.) A secondary concern is loss of sight due to cataracts and bone cancer resulting from prolonged exposure.			
	Electronics	Normally no effects. Levels deadly to life can cause electronics to fail.			
UV Radiation		A to Y	No	8-15 Minutes	1-3 Hours
	Human Burns & Blindness	High doses can result in severe burns (1st, 2nd and 3rd degree), especially with longer duration. Lower doses can cause blindness and skin cancer.			
	Electronics	Reduced lifespan and diminished functionality with open exposure.			
Gamma Rays		A to Y	No	8-15 Minutes	1-3 Hours
	Human Kiss of Death	The effects are similar to X-Rays, but Gamma rays are far more deadly. The primary concern includes all primary and secondary concerns for X-Rays. The secondary concern applies only to those who rely upon medical devices. It could impair the operability of hearing aids and surgically implanted electronic devices such as pace makers.			
	Electronics	Normally no effects. Levels deadly to life can cause electronics to fail.			
EMP		X and Y	No	8-15 Minutes	<1 Minute
	Human Bad for Patients	Expect surgically implanted electronic devices, such as pacemakers, to fail. Hearing aids will fail. Hardest hit will be patients undergoing treatment. Hospitals and clinics use vast amounts of electronic medical devices and many will fail. Physicians and staff members will then be overwhelmed with an onset of code red emergencies, while simultaneously having to fall back on legacy manual systems.			

	Electronics	Kiss of Death. Transformers, solid state and printed circuits short-circuit and melt.			
Magnetic Storm		None	Yes	17.5 – 48 Hours	24-28 Hours
	Human	Can temporarily impair operability of medical devices, such as hearing aids and surgically implanted electronic devices, such as pacemakers.			
	Electronics	Will diminish or disable any communication device throughout the entire event duration. Expect radio, TV and cellular reception to be filled with static.			

Shielding yourself from these solar storm nasties requires the same level of preparation we already use when expecting tornadoes or severe storms. We look for a safe place where there is enough mass between us and what is trying to kill us to make a real difference. Some places are optimal, and others are better than nothing at all.

If you're lucky enough to hear a public defense siren or news broadcast warning of an imminent solar storm, start looking at the world around you with something called a half-value thickness in mind. In particular, you want something that will reduce your exposure to the most dangerous solar storm nasty there is. Gamma radiation.

The table below shows the half-value thickness of common construction materials you need to reduce oncoming gamma radiation strength by half. Memorize it!

MATERIAL	Half-value Thickness (HV)	50% Less Minimal 1 x HV	75% Less Fair 2 x HV	87.5% Less Less Good 3 x HV	99% Less Excellent 7 x HV
Iron or steel	0.7" (18mm)	0.7" (18mm)	1.4" (36mm)	2.1" (54mm)	4.9" (126mm)
Brick	2.0" (51mm)	2.0" (51mm)	4.0" (102mm)	6.0" (153mm)	14.0" (357mm)
Concrete	2.2" (56mm)	2.2" (56mm)	4.4" (112mm)	6.6" (168mm)	15.4" (392mm)
Dirt	3.3" (84mm)	3.3" (84mm)	6.6" (168mm)	9.9" (252mm)	23.1" (588mm)
Ice	6.8"	6.8"	13.6"	20.4"	47.6"

	(173mm)	(173mm)	(346mm)	(519mm)	(1211mm)
Soft Wood	8.8" (224mm)	8.8" (224mm)	17.6" (448mm)	26.4" (672mm)	61.6" (1568mm)
Snow	20.3" (516mm)	20.3" (516mm)	40.6" (1032mm)	60.9" (1548mm)	142.1" (3612mm)

When looking for solar storm shelter, use the gamma ray half-values in the table above and the following three rules:

1. **GET TO SHELTER FAST:** The instant you know you're in a deadly solar storm, stop talking, focus all your attention on finding the best available shielding option and get there – fast!
2. **THICKER IS BETTER:** The thicker the material, the better the protection. While standing under 0.7"(18mm) of iron will cut your exposure in half, that is still better than standing out in the open like the proverbial poodle in the microwave oven.
3. **PROTECT FROM ABOVE:** Unlike hurricanes, tsunamis and tornadoes that come at you from the side, solar storm nasties all move in a straight line down from the Sun to you.

The 8-18 Solar Storm SA Survival Plan

[The "The 8-18 Solar Storm SA Survival Plan" section was omitted from the excerpt.]

GO-to-Ground Safety Zones

Huddling in bunkers and basements for months and years on end is a sure way to go off the deep end. Rather, life goes on and so we take care of families, work at jobs, go shopping and do all the other normal activities of everyday life. That's why you need to find multiple solar storm survival zones within your everyday travel patterns.

Finding Protection at Home

- Safe rooms
- Storm shelters
- Root cellars
- Basements

Find Protection in Cities

- Underground parking garages
- Auto and pedestrian tunnels
- Underground subway stations
- Tall buildings with deep basements
- Banks with open vaults
- Catacombs (underground burial crypts)
- Sewage systems
- Storm drain systems

Finding Protection in the Country

- Any cave
- Any mine
- Any tunnel
- Road culverts
- Cliff overhangs
- Natural stone arches