

# Threats and Disasters on Planet Earth

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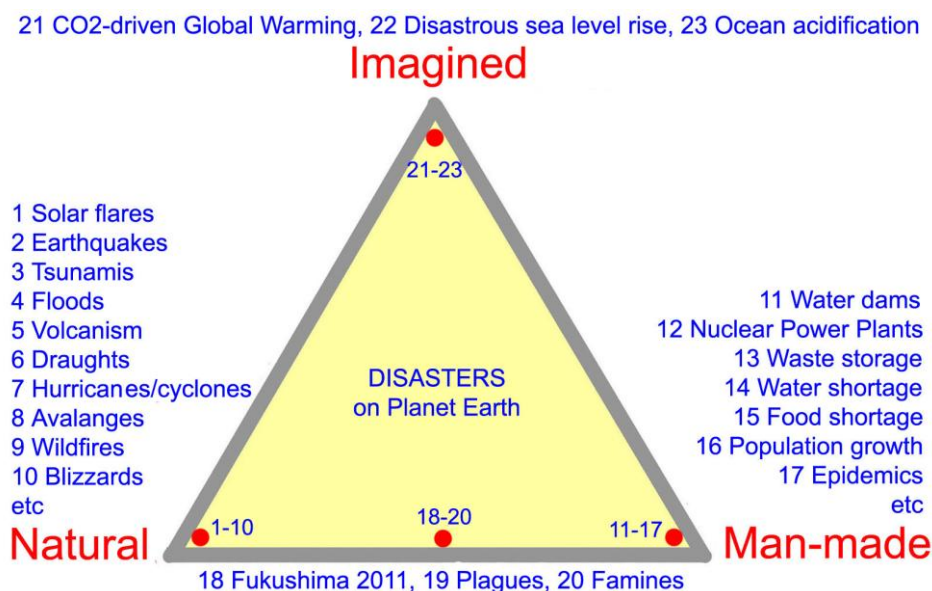
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**Abstract**— Human life on Planet Earth is threatened by a large number of potential disasters. Those processes are addressed, and discrimination is established between natural, man-made and imagined disastrous events. Giant solar flares (of Carrington event or even higher intensity) poses novel threats not previously discussed. Such events would have totally disastrous effects on the electronic and electric systems of the developed world – only native populations and nomads would pass it without problems. In the group of “imagined disasters”, we find all the core issues carried by the IPCC project; i.e. a CO<sub>2</sub>-driven global warming, a rapidly rising sea level and severe ocean acidification. All those processes are unreal and imagined because they do not concur with available observational facts and physical laws, and by that they also violates our geoethical principles.

**Keywords**— Disasters, giant solar flares, natural disasters, man-made disasters, imagined disasters.

## I. INTRODUCTION

Life on Planet Earth is constantly being threatened by different types of disastrous events; some are natural, some are man-made and some are just imagined [1]. Some threats increases with our population growth and condensation to mega-cities and low-lying coastal areas. Plagues and famines have killed hundreds of million of people through time. Here, the progress in medicine and human health care have changes the situation drastically. Some of our building constructions – dams for water and nuclear power plants for electricity – have emerged as new sources of man-made disasters. There are also a number of proposed disastrous processes that, in fact, are merely imagined, and products of our super-effective lobbying campaigns. Figure 1 illustrates the position of various disastrous threats in a triangle diagram bounded by natural, man-made and imagined disasters.



**FIGURE 1. DIFFERENT POTENTIAL DISASTERS IN A TRIANGLE DIAGRAM BOUNDED BY NATURAL, MAN-MADE AND IMAGINED EVENTS.**

## II. NATURAL DISASTERS

The lower left corner of the Figure 1 diagram marks natural disasters. Earthquake, volcanic eruptions and tsunamis are typical natural events. The 1556 Shaanxi earthquake in China had a death toll of 830,000 persons, and the 1976 Tangshan earthquake in China a death toll of 255,000 persons. The 2004 Indian Ocean tsunami had a death toll of 230,000 persons.

The 14 largest earthquakes in the last 1500 years had a total death toll of 3 million people ([1], Table 1).

Floods often have terrible death tolls, but the estimates have large uncertainties. The three largest ones in China (1931, 1887 and 1938) had a total death toll ranging between 1.5 and 6.7 million people.

The 10 worse hurricanes/cyclones had a total death toll of about 2.1 million people.

In the cases of natural disasters, the common characteristic is that we cannot prevent them, only try to prepare for them. In some cases, like tsunamis, it is vital to build up effective warning systems. In earthquake research, our ultimate hope is to build up some sort of fore-cast systems.

Just recently, we have come to realize that giant solar flares may lead to tremendous effects on our societies on Earth. This is because the developed world is so nearly totally built up on electronics (ranging from most sophisticated systems to cello phones and kitchen apparatuses). The largest giant solar flare was the Carrington even in 1859, i.e. long before our electronic world has commenced [2]. If this event would happen today, it would cause tremendous damages to the electronic systems of the developing world.

At the 5<sup>th</sup> Space Climate meeting in Oulu in Finland in 2013, it was mentioned (for the first time, I think) that giant solar flares 1000 times bigger than the Carrington event might occur, at least from a theoretical point of view. A giant flare in star KIC9655129 in the Milky Way has just been reported [3] with a magnitude 1000 times greater than any previously recorded flare. This lends new support to the notion that giant flares of that enormous magnitude might really be a fact. Consequently, our estimate of maximum giant flares from the Sun must now be increased to levels of the Carrington event and even significantly above this level.

This poses an enormous new threat to our terrestrial systems. Would such an event occur today, a total disaster would hit the developing world, because almost everything is built up around electricity and electronics. Only native people would pass the event without serious damage.

A giant solar flare stronger than the Carrington event would knock out our electronic systems; the electric supply would close down (no lamps, no heating, no cooking, etc.), the nuclear power plants would face approaching meltdowns, air plains in the air may drop down, most cars would stop working, vital medical apparatuses would stop working, warning systems would be inoperative, cell phones would be blocked, etc. etc. – the disaster of the developed word would be complete.

We can do nothing to prevent giant solar flares; if they come, they come. What we can do, however, is to prepare for how to cope in case of such a intensive giant solar flare that it would lead to disastrous effects on our electronic-electric systems on Earth.

### III. MAN-MADE DISASTERS

All through history, there has been wars; all of course 100% “man-made” and all still so inhuman and unnecessary. How many millions of people have not been killed in wars. Also, the environmental destructions have been disastrous. In recent wars we have the terrible addition of pollution by nuclear weapons. This includes the spreading of depleted uranium [4].

The concentration of people in mega-cities opens for all kinds of disasters. The effects of natural disasters like earthquakes, tsunamis, storms and flooding increases tremendously into big disasters hard to impossible to handle. Mega-cities also opens for severe man-made events like poverty, health problems, vulnerability to shortage in food and water supply, and the rapid spread of epidemics.

A water dam for hydropower has a possibility to collapse with disastrous effects in the down-dam valley. The three-river dam in China is gigantic. An accident here would generate a true mega disaster downstream (including the Shanghai region).

Nuclear power plants sometimes collapse into meltdowns. During the last 60 years, there have some 30 nuclear power plant accidents [4]. The Chalk River 1952 accident in Canada, the Kyshtym 1957 accident in Russia, the Harrisburg 1979 accident in USA, the Chernobyl 1986 accident in Ukraine and the Fukushima 2011 accident in Japan were major events with serious contamination of the environment.

### IV. COMBINED NATURAL AND MAN-MADE DISASTERS

The Fukushima-Daiichi accident of March 11, 2011, was a terrible disaster. The Independent Investigation Commission [5] stated that although triggered by the earthquake and tsunami events, the subsequent accident was a profoundly man-made disaster.

Plagues are a combination of natural and human habitation conditions. The Antonine Plague of the Roman Empire in AD 165-180 killed ~5 million people. The Black Death in 1348-1350 killed about 100 million people in Europe. The Spanish Flu in 1918-1919 killed 50–100 million people. Present days threats of pandemic diseases seem rather to belong to the man-made group, at least predominantly.

Famines may be caused by climate (affecting the food supply), politics (controlling the distribution of food) and population density (shortage of food). The thirteen most severe famines have killed some 145 million people ([1], Table 3). The big famines of the last 100-150 years seem strongly affected by the drastically increased number of people and the political unrest with numerous wars.

### V. IMAGINED DISASTERS

We are today living in a world where it has become customary to obtain awareness by threats. Neither a CO<sub>2</sub>-driven global warming nor a disastrous sea level rise – as proposed by the IPCC and being the central issue in the VOP21 negotiation – are based on scientific facts. In both cases, the negative to disastrous effects come from model out-puts, which are in deep contrast to observational facts [6]. Naturally observational facts must outdo data obtained from computer modeling. Hence, both CO<sub>2</sub>-driven global warming and rapidly rising sea level represent “imagined disasters” (Mörner, 2010)[1]. This is also the case with ocean acidification [7].

### VI. CONCLUSION

Human life on Planet Earth is constantly exposed for threats that might lead to disastrous events (Fig. 1, Table 1). There are a

large number of natural treats, which we hardly can do anything about, but to build up warning systems and rescue systems; i.e. to be prepared when they hit. Among those are earthquakes, tsunamis, volcanic eruptions, hurricanes/cyclones, floods and draughts. Giant solar flares have jus emerged as one of the top-most disasters when it comes to effects on human conditions in the developed world. As the threat has not been properly discussed before, we have at present no preparations at all. It is vital to build up back-up systems and reserve systems in case of giant solar flares affecting our electronic and electric systems over the globe.

**TABLE 1**  
**DISASTER THREATS TO LIFE ON EARTH; THE TEN PROBABLY WORSE TYPES OF EVENTS**

1	Giant solar flares with global breakdowns of electronic-electric systems
2	Wars (especially with the spreading of nuclear material)
3	Major nuclear meltdown disasters
4	Mega-earthquake in the vicinity of mega-cities
5	Mega-tsunamis affecting densely populated coastal areas
6	Major flooding events, including dam collapses
7	Mega hurricanes/cyclones
8	Severe pandemics
9	Severe regional droughts
10	Explosive mega-volcanism

Other threats are man-made due to our building of huge water dams, nuclear power plants, houses in vulnerable positions, and especially the population condensation to mega-cities. The most ridicules disasters are the wars. Every day, about 25,000 persons die from lack of water. Starvation is widespread in the developing world. Mega-cities are growing grounds for epidemics, including pandemics.

Then there is a final group of imagined disasters. They are products of misguidance and massive medial-carried lobbying. Here we have CO<sub>2</sub>-driven global warming, disastrous sea level rise and oceanic acidification. It is just remarkable how these misconceptions have been build up to “a new religion”, it total disagreement with scientific observational facts, physical laws and geoethical principles [6].

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