

A Sustainable Environment: Our Obligation to Protect God's Gift

by

George P. Nassos

Is Climate Change Shaking the Earth?

Now that we are heading for several months of presidential campaigns, there will be many issues under debate. One of them *may* be climate change. Being such a critical issue, not necessarily as a campaign issue, let me discuss it again. I recently read an article titled "Global Warming in a Nutshell" that describes this effect very nicely, something like "Global Warming 101". Although I have discussed this issue in earlier columns, it is worth another look from a different perspective.

Think about the earth as a giant rock hurtling through space in its orbit around the sun. It would be a frozen lifeless rock like the moon if not for the thin layer of atmosphere that traps solar energy and insulates the Earth's surface, like a transparent blanket. The way the atmosphere traps solar energy is called (somewhat inaccurately) the Greenhouse Effect, because the effect is similar to a greenhouse or a closed car heating up in the sun. Sunlight comes in through a transparent window and is absorbed by whatever it hits, heating up the interior. Some of that heat is trapped inside, partly because glass is less transparent to heat than it is to light, and the temperature increases.

In the atmosphere, sunlight is absorbed by the Earth's surface or rooftops or whatever, and that energy is radiated as heat (infrared energy) back toward space. Most of that heat doesn't make it to space because it gets absorbed by certain gases in the atmosphere, mainly water vapor, carbon dioxide, and methane. Normally this is a good thing, because without the heat trapped in the atmosphere by "greenhouse gases", our planet would be frozen. But it turns out that too much of a good thing is a bad thing. If extra carbon dioxide that is not part of the natural carbon cycle is added to the atmosphere, then extra heat is trapped that would otherwise escape to space, and the atmosphere gets warmer. So in a nutshell, Global Warming is an increase in the Earth's overall average temperature caused by adding extra carbon dioxide and other greenhouse gases to the atmosphere that absorb and trap heat.

Global warming is NOT about the daily weather as there's no clear connection between global warming and any single hurricane or snow storm or drought. That's really not the right way to think about it. Instead, adding energy to the whole Earth System leads to such things as more frequent severe weather events that on average are stronger and more damaging. That is, it's a statistical thing that has to do with averages and long-term trends, rather than one's own experience with the daily weather.

GPS measurements reveal that the crust beneath the Greenland ice sheet is already rebounding in response to rapid melting, providing the potential – according to researchers – for future earthquakes, as faults beneath the ice are relieved of their confining load.⁽¹⁾ The possibility exists that these could trigger submarine landslides spawning tsunamis capable of threatening North Atlantic coastlines. A dramatic increase in landslide activity would occur in the Andes, Himalayas, European Alps, and elsewhere, as the ice and permafrost that sustains many mountain faces melts and thaws. Across the world, as sea levels climb remorselessly, the load-related bending of the crust around the margins of the ocean basins might, in time, act to sufficiently “unclamp” coastal faults such as California’s San Andreas, allowing them to move more easily; at the same time acting to squeeze lava out of susceptible volcanoes that are primed and ready to blow.

The bottom line is that through our climate-changing activities, we are loading the dice in favor of escalating geological havoc at a time when we can most do without it. Unless there is a dramatic and completely unexpected turnaround in the way in which the human race manages itself and the planet, then long-term prospects for our civilization look increasingly grim. At a time when the debilitating effects of anthropogenic climate change are insinuating themselves increasingly into every nook and cranny of our world and our lives, the last thing we need is for the dozing subterranean giant to wake up. We really need to pay attention to the climate change environmental issue.

1. McGuire, Bill, “Climate change will shake the Earth – literally”, The Guardian.