

## **CLIMATE WEIRDNESS!**

*Sponsored by Clair Trujillo*

*Clair won the last sermon auction and requested this topic after hearing her brother speak about it during his naturalist lectures while on a Cruise ship. Alan Trujillo trained as a Geologist but writes the most widely used Textbook on Oceanography. Al is the Distinguished Teaching Professor in Earth, Space, and Aviation Sciences at Palomar College in San Marcos, California. Though I may not quote directly, Al's work has certainly informed this sermon!*

Climate Weirdness is a great way to describe the Climactic changes that have become even more noticeable during the last few years. The last 4 years were the hottest on record. Hurricanes and Typhoons have been getting stronger and more destructive just as climate scientists have been predicting. Areas under drought conditions have been increasing and changing. Snow and rains have been falling in places that normally have not gotten snow and rains in such quantity and flooding has increased significantly in several parts of the globe. Weird weather has been noted all over the globe in recent months and years and the longer term Climate has been getting weirder, too.

There are those who believe God is changing patterns for his own purposes and that the pollution to air, water, and land along with the release of Greenhouse Gases is not a problem because God will fix it in his own good time. There are others who pay little attention to Climate Changes and care only for quick profits for corporations. I don't expect there are many here with either kinds of beliefs, however, so let's look a bit deeper into the problem.

The Earth has many ways to respond to atmospheric and climactic changes. The Oceans provide a huge buffer to the effects of climate warming from the production of Carbon Dioxide, absorbing 1/3 of the CO<sub>2</sub> in the atmosphere. The rest is absorbed by plants and trees for photosynthesis which releases oxygen. But there are other factors in the equation which both limit the amount of CO<sub>2</sub> the ocean can absorb and create changes in the PH of the ocean, making it more acidic and threatening many of the animals and plants that live in the ocean.

The overall ecosystem of the earth requires some greenhouse gases to keep the Earth in the optimal temperature range for life. Without any greenhouse gases the Earth would cool below the optimal range and many lifeforms would die off fairly quickly. Greenhouse gasses reflect heat back to the Earth raising the temperature into the range required, but if there are too many carbon particles and molecules of Greenhouse gasses in the atmosphere, the earth will become too hot and again many lifeforms will die off. Humans and some other species can adapt to some temperature changes, but many living things cannot adapt if the change is too large. Similarly, big enough changes in levels of precipitation will cause die-offs among many species in areas experiencing drought and desertification, fires, storms, and flooding.

Climate change is a matter which President Trump, his followers, and many other Republicans feel free to ignore because they do not believe it is a problem and they don't seem to understand or believe the science. In fact they have actively been dismantling the climate protections put in place by many previous administrations in order to free Big Oil, Coal, Power and Auto Companies and other Corporate Interests from accountability, responsibility, and any requirements to help reduce or clean up pollution that they cause. This may turn out to be the most serious flaw of the current regime. Withdrawing from the Paris Accords, removing EPA restrictions, reducing or eliminating mileage targets and removing incentives for cleaner cars & trucks may push the Earth closer to unstoppable temperature increases, ice-melt, and Ocean rise.

Climate Change has been a slow-moving disaster. We respond better, apparently to immediate threats. If we cannot see the Iceberg, Fire or Asteroid, we can just ignore it. In fact we have gotten really good at ignoring things that are not in our direct line of sight both as individuals and society. We are so focused on the short term bottom line that we can hardly imagine things even a year or two out. We only see the storm intensification for that brief period when the storm is active and as soon as it's gone we are back to the unlimited number of distractions that keep us busy! And even if we watch the corporate news shows, we see only select stories that provide a limited view of reality. And if we get all our news from our preferred social media outlet, we are even more likely to see a narrowed view provided mainly for our entertainment.

We need to have several written, telecast, and internet sources to have any real sense of what is happening in the world. And we need to use sources that still offer news rather than merely confirm our own views or entertain. We need to seek out objective reporting and objective selections of stories. Fortunately, most of the weirder aspects of the climate situation also are interesting enough to be reported by most reputable media channels. We certainly hear about the fires and floods, and large or untimely hurricanes and blizzards. The fire season used to be predictable, but is limited now only by seasons when it is wet enough to prevent the spread of fires. Floods are less likely where and when it is dry enough for fires, but with fires leaving hills bare and serious storms occurring more frequently, dangerous floods are also coming more frequently.

I'm sure most of you have seen the stories of the Ocean Garbage Patches of discarded plastic. I was very hopeful of the idea by one creative young man to catch the plastic with a long pipe boom and then suck it up. That idea may still work, but it needed repairs and some tweaking after sustaining damage to the boom a few months ago. I haven't heard whether it is back at work yet.

The Great Pacific Garbage Patch, Vortex or Gyre which is about halfway between California and Hawaii may be twice as large as Texas, but the size is hard to nail down because the plastic in the Garbage Patch floats at various levels and is not all visible to ships or planes. There are also Garbage Patches in the other oceans of the world. Discarded plastic makes up the garbage patches which are slowly breaking up so that fish and birds eat the pieces, often leading to their deaths. The damage done to the ocean ecosystem is immense and may take centuries or millennia to repair even once effective means of mitigation are found and employed. This is a wholly human caused problem even if there may be some natural sources of other aspects of climate change. We created plastics and let them be discarded where they got into the oceans.

But the Garbage Patches are hardly the only problem we have let find their way into the ocean. We humans have treated the oceans like a trash dump we could never fill. Solid waste was taken out a few miles from shore and dumped. Sewers led to the ocean. Rivers of waste were long allowed to dump into the oceans untreated.

Even today, agricultural runoff continues to feed and perpetuate dead zones where the Mississippi and other major rivers feed into the ocean. Often the nutrients will feed algae blooms that in dying use up all the oxygen in a large area, forcing out fish and other marine animals and killing those living beings unable to escape. The trash that storms drive up onto beaches is only the tip of the iceberg of human impacts to the oceans.

Then of course there are matters of overfishing and upsetting the natural balance of fish and marine mammals. Some animals and some areas are protected but it will be generations before a natural balance is restored if it ever is. Warming oceans have changed spawning patterns and hunting patterns of various species. One notable evidence is in the changing appearances of sharks along coasts. Another is in the redistribution of marine mammals such as Manatees, Seals, Sea Lions, Dolphins and Whales. Some areas have been so overfished and overhunted as to no longer support sustainable colonies.

This is also true of many land species as well, of course. Wolves and Bear, and Mountain Lions, and Coyote have all been hunted to extinction level in many areas. Only the reintroduction of such animals in safe areas such as Yellowstone have allowed a limited amount of recovery, which has made the area healthier, especially with the restoration of wolves as the apex predator. There really isn't much if any of the world that humans haven't touched and usually damaged by our interference, especially in the last 2-300 years.

But this climate weirdness thing, that may be hitting us harder than any of the other species! We finally have made a big enough mess that it may wipe out humanity. Of course, it will still be years, likely decades, and possibly another half century before we see the worst impacts in rising seas flooding low lying areas, unlivable temperatures in vaster deserts and even more powerful storms. I am convinced that we already have been seeing early impacts for years, especially in the changing climate patterns and storm intensification. And sea levels have been rising, though it has been a slow increase that is only recently allowing the big storms to have a bigger impact through higher storm surge and lower level of coastal wetlands that once helped to absorb the impact of storms. Our coastal development, especially in Florida and the Gulf Coast has allowed tens of millions of people to live in areas at risk of flooding & storm damage.

When I was growing up in Chicagoland, we had some pretty bad snowstorms, cold periods, lots of thunderstorms, some hot summer days and a few Tornado warnings each year. It seems like that area has seen some even stronger storms in recent years, but I haven't kept track very well. While I was in Little Rock, we set a record for the wettest year historically. Out here, in California, we set some records for droughts and fires, and lately the rains and mountain snows have been pretty impressive.

Some would say that we are now well past the tipping point of Climate Change, that we are past the point at which we can roll back the changes that we are already beginning to see. That may or may not be true, but there certainly are things that we can do to mitigate the worst impacts of climate change. The most comprehensive response that is being widely promoted currently is the Green New Deal, which calls for a complete shutdown of fossil fuel use and its replacement by renewable energy. The Green New Deal also addresses a wide range of societal problems, including guaranteed employment and health care for all. It won't likely become US policy soon, but hopefully it will broaden the discussion and create movement toward addressing problems including Climate Change.

Individually, most of us UUs have been conserving, reusing and recycling for decades. UUs probably drive a higher percentage of Electric Cars and Hybrids than any other religious group. And we likely have more Solar Panels on our roofs than any other group. We turn out for community clean-ups, coastal clean-ups, and we probably will support the adopt-a-road program. We are engaged with ecological groups such as Sierra Club, Audubon, Interfaith Power & Light, and other organizations that have ecological concerns as a major part of their reason for being. There of course is more that we can do, but we are doing a lot already.

As we move forward, the storms are likely to get worse, as are the fires and drought periods. The climate weirdness is going to continue and likely increase. There will be even stronger Hurricanes and Typhoons. The wet and dry periods and cool and hot areas are likely to change. Old patterns are not going to predict the changes coming. Even the Earth's magnetic poles are changing location. Arctic Ice pack is significantly smaller now than ever before

on record, and more Antarctic Ice Shelves are at risk of breaking off. Greenland's Ice is melting faster than ever before and faster than predicted. The impact of many changes may be compounded by current trends, and freshwater melt may disrupt oceanic currents that will cause greater impacts on the oceans. The world we have known may not be the world we will soon see.

As individuals and as a movement we have championed our ability to handle change, but that may soon be tested in new ways. With all the issues of seeking to support the rights of LGBTQ persons, persons of color, women, and differently abled persons, the biggest challenge we may soon face may be a livable environment. As the current administration continues to dismantle environmental programs, it falls even more heavily to those of us more aware to do all we can to protect the environment. May we respond to Climate Weirdness with commitment, courage, and an extra effort to protect and nurture Gaia! May we stand together as we work for a safe and healthy world!

Shalom, Salaam, Blessed Be, Namaste, and Amen!