

The “Turmoil” on “Climate Change”

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Abstract:- Humans did not think of Climate Change in the past. It was all natural Greenhouse Effect maintaining the temperature of the Earth. The increase in world population and rapid industrialization by emitting anthropogenic gases by humans cause an enhanced Greenhouse Effect which results in global warming and Climate Change. Some researchers in this field who support the theory of global warming bring out their findings some of which are really nightmarish and alarming for the readers. There is another school of thought opposing and not accepting the global warming theory. They go by saying that there is actually global cooling and not warming. This creates a turmoil between the two schools of thought and the readers. The tussle between the skeptics and prophets of global warming is considered by actually going through the research work of few of them in both the category. The author is in support of the views expressed by both the groups and maintains a status quo.

[**Key words:** Greenhouse effect, Global warming, Global cooling, Anthropogenic emissions, Climate Change]

I. INTRODUCTION

Let me start with a philosophical statement (appropriate to our present context) by Heraclitus the obscure and ‘weeping’ philosopher of Greek origin in the 5th century B.C. Viz. *“There is nothing permanent except Change and Change alone is unchanging”*. ‘Weeping’ as applied to him is in a different context, but as applied to our subject, we are all weeping over the issue of global warming and Climate Change. Climate Change has become almost permanent and the word ‘Change’ is a misnomer because there is no specific mention of whether the change is due to warming or cooling. Scientists specially climatologists simply ponder over the change due to warming and ignore the situation due to cooling as if it has not taken place at all. This has created two different schools of thought; one the prophets of warming theory and the other who are skeptical of warming concept and support the cooling theory. In the matter that follows, I would like to present the research work of few of them separately and arrive at a conclusion. Reference numbers in the text are given only to research papers of few eminent authors.

A. Ideals in support of the Global Warming theory.

Titles creating a nightmare:

I would like to enumerate below few titles of research papers by eminent authors, news items and other publications. Some of the titles, if not all, appear to be whether they are true or false from a general point of view but certainly create surprise for the reader. For example:

- *“Apples losing their crunch to Global Warming”* - Scientific Reports from Paris, Aug. 15, 2013. According to the report, temperature increase and resulting Global warming affects the growth of apples.

- *“Red hair is all set to disappear – thanks to Climate Change”*- News item in Times of India, Mumbai, Jul.8, 2014..

According to a report from London and published in the Times of India, Mumbai Science section, Dr. Allistair Moffat of Scotland has found that the DNA in human skull is more prone to temperatures associated with Climate Change which affects the color of hair.

- *“Rise in daily temperature leads to rise in kidney stones”* - The Boston Globe Health & Wellness, July 14, 2014.

Researchers at a hospital in Philadelphia found that about 64,000 adults and children in various parts of the US had kidney stones because of extreme heat and cold due to Climate Change.

- *“Rise in violence linked to Climate Change”*. By Rebecca Morelle, Science Reporter BBC World Service. - Aug.2, 2013.

Changes in climate are strongly linked to increase in violence around the world. According to Marshal Burke of University of California at Berkeley, even small changes in temperature or rainfall correlated with a rise in assaults, rapes and murders as well as group conflicts and even war.

- *“Eating less beef better way to cut carbon emissions”* – July 23, 2014.

Gidon Eshel, Prof. of Environmental Physics at Bard College, New York says that cows are not efficient at converting feed to protein for human consumption. Any other meat other than beef, would result in the equivalent of about 9 days worth of the country's capital Greenhouse Gas emissions.

- "Rising carbon dioxide levels causing 'tooth decay' in sea organisms" - Jul 27, 2014.

Experimenters at the University of St. Andrews, show microscopic organisms called 'Foraminiferm' (Forams), suffer the equivalent of tooth decay as sea water becomes more acidic as the Greenhouse Gas CO₂ gets dissolved in it.

The above titles make good reading and surprise the common man as the science behind them is not understood.

As Global Warming is our main topic of interest, I shall focus my attention more on the temperature aspect and seek information for its evidence from few researchers in the field. We start with:

Lonnie G. Thomson^[9] of the Ohio State University studied the 20th and 21st century glacier shrinkage in the Andes, the Himalayas and on Mount Kilimanjaro and found that the rate of carbon dioxide emissions continues to accelerate. There is clear evidence of warming causing rapid and potentially catastrophic changes in the near future. According to him, the glaciers provide an early warning system for Climate Change and considers glaciers as the "canaries in the coal mine". The average rise in global temperature increased from 0.11°F per decade to 0.29°F per decade.

Dr. James Wang^[10] and **Dr. Bill Chameldes** say that Global Warming is no longer a prediction. It is actually happening and is an undisputed fact. With both the atmosphere and oceans warming the temperature has increased by 0.6°C over the past century. The Global Warming creates killer heat waves, torrential rains and flooding, Drought, Rise in sea level, Disintegrating polar ice and melting permafrost, Damage to coral reefs and outbreaks of disease.

According to **Holli Riebeek**^[3] from NASA Earth Observatory, the current global warming is taking place much more rapidly. Based on climate models and plausible emission scenarios he asserts that the average global temperature could rise between 2°C and 6°C by the end of the 21st century.

The 'Warming' and the consensus that Climate Change is due to anthropogenic emissions caused by humans is stressed by **John Cook**^[2], et.al. The statistics carried out by them indicates that about 97% endorsed the consensus that humans caused global warming and the percentage of rejection was negligibly small.

In the above we have considered the work of only few researchers in the field to avoid running this paper into pages. The warming trend shown by graphs, (temperature anomaly versus years), by researchers all have a similarity and a typical one by **Holli Riebeek**^[8] is shown in Fig.1... The graph shows both the annual mean and 5-year running mean merged in the curve.

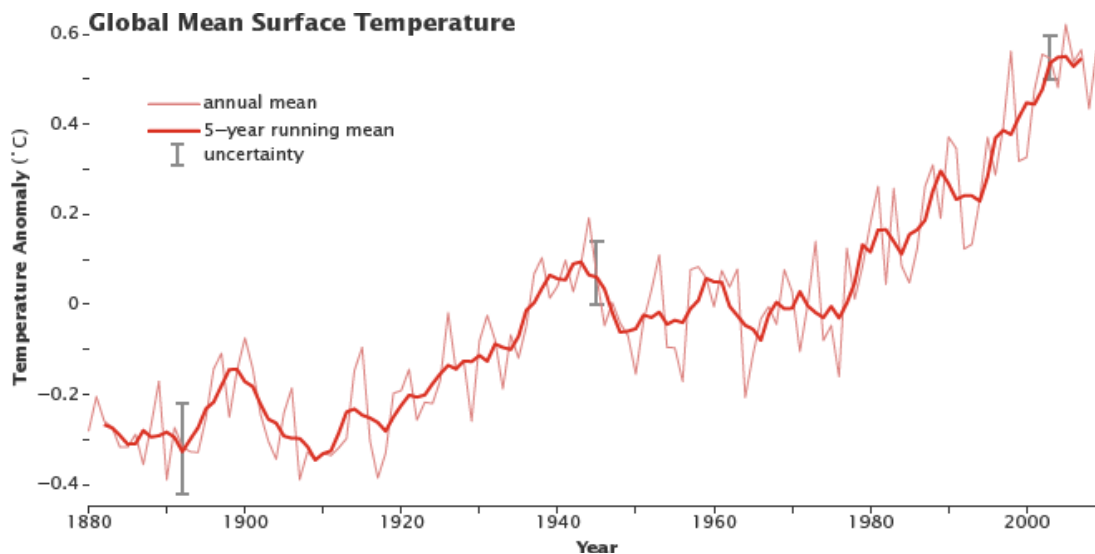


Fig.1 Global mean surface temperature from 1880 to 2000.
[Graph Credit: ⁸Holli Riebeek-NASA(2007)]

The world body which controls and commands all nations regarding global warming and Climate Change is the Intergovernmental Panel on Climate Change (IPCC). The new and latest report by IPCC was done on Wednesday, April 2, 2014 stating that "Climate Change is here, World Needs to Adapt" mentioning the following points

- Affecting global poverty
- Changing coastlines
- Destroying and rarely benefitting, food systems
- Causing animal extinction
- Fuelling riots over food prices
- Damaging worldwide security
- Destroying homes even in England and Wales
- Causing world fires, floods, hurricanes, tornados and droughts.

II. THE CAUSE FOR ALARM

Researchers have worked out the temperature rise and it is found to be about 0.8°C per decade. The question is why this temperature rise and warming. The cause is the anthropogenic emissions the main culprit of which is the Carbon dioxide from the burning of fossil fuels due to unlimited and uncontrolled industrialization on a global scale. This CO₂ is responsible for the enhanced Greenhouse effect resulting in global warming. The CO₂ in the atmosphere before the industrial era was about 280 ppm whereas the present value is about 380 ppm. The increase is considerable. **Catherine Clabby**^[1] has produced global maps taken by the Atmospheric Infrared Sounder instrument aboard NASA's Aqua Satellite useful for climate research. The instrument is most sensitive in the measurement of long wavelength infrared radiation from CO₂ above 5.5 km above the surface of the Earth. According to her, the concentration of CO₂ is found to increase by 2 ppm per year on an average. The instrument is so precise that it could measure even the location of concentration and is found that there is more concentration in the northern hemisphere.

The physical processes resulting global warming follow a cause and effect formalism shown in the following cascade. The quantity on the left of the arrow is the cause and the one that follows the arrow is the effect.

(Anthropogenic emission) → (Enhanced Greenhouse effect) → (Rise in Temperature) → (Global Warming) → (Climate Change)

The effects of global warming are hazardous and alarming and the same will not be discussed here. But it is certain that the reality of global warming is well set and an undisputable fact. It has almost become an epidemic.

III. ARGUMENTS IN SUPPORT OF THE COOLING THEORY:

Papers emphasizing Global Cooling:

Prof. Don J. Easterbrook^[3], Dept. of Geology, Western Washington University has systematically and scientifically analyzed the problem of warming historically and the warming of 0.8°C during the past century cited by IPCC is insignificant as compared to 10 global changes during the past 15,000 years. The oxygen isotope record in the Greenland Ice Sheet Project shows warm and cool periods over past 500 years. The records of the past natural cycles suggest global cooling for the first several decades of the 21st century to about 2030 followed by global warming from 2030 to 2060 and renewed global cooling. It is a 30-year climatic cycle as shown Fig. 2. After year 2000, the curve in the graph has a simple harmonic behavior parallel to the year-axis indicating alternate warming and cooling. The graph is named after the author as the '*Easterbrook Projection*'. The projection 'A' is based on assuming next cool phase similar to 1945-1977 cool phase and the projection 'B' is based on assuming next warm phase. The predicted warm cycle from 2030 to 2060 is based on the projection of the 1977 to 1998 warm phase and the cooling phase from 2060 to 2090 is based on the projection of 1945 to 1977 cool phase.

From 1977 started the "*Great Pacific Climate Shift*" from the cool mode to warm mode till 1998. The author accepts the reality of the present global warming, but at the same time argues that the minute increase of 0.008% in atmospheric CO₂ due to anthropogenic emission is not the cause for warming. The warming is due to natural cycles. Based on his theory of alternate warming and cooling, a repeat of Little Ice Age can also happen in future and it will be more damaging.

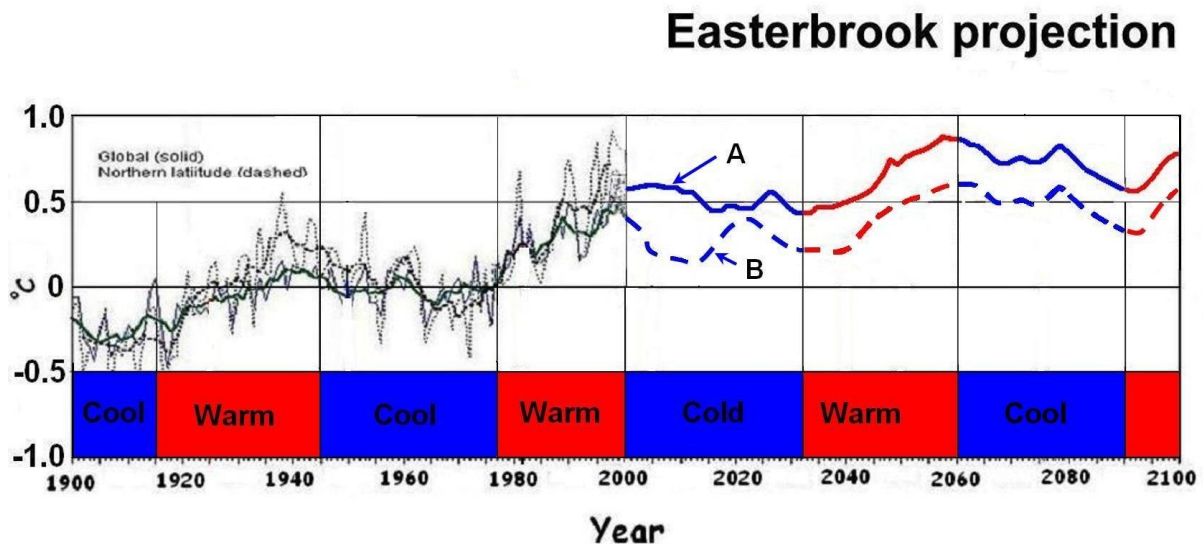


Fig. 2 Illustration of Easterbrook projection (*Graph Credit: Don J. Easterbrook*):

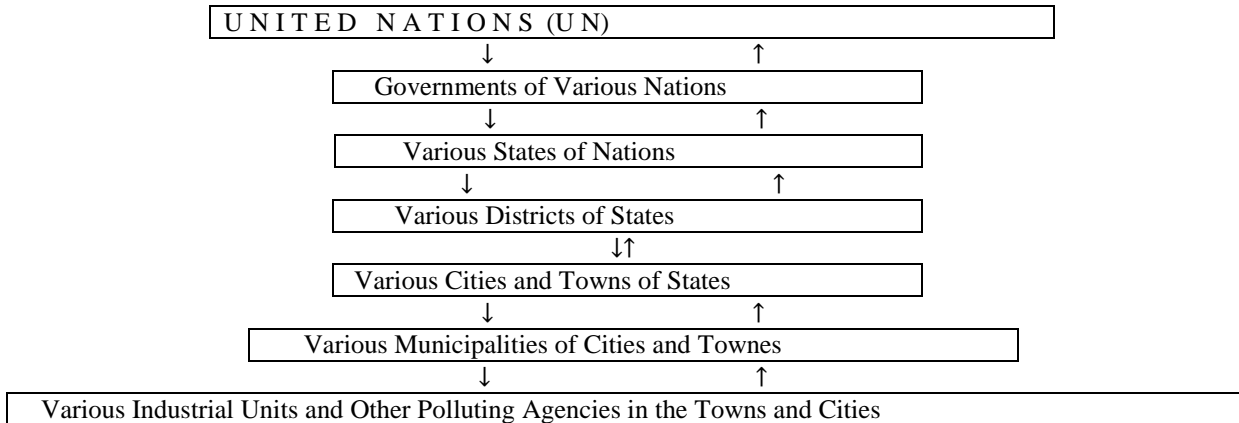
In support of the cooling theory, **Cliff Ollier**^[7] in his research work has cited a number of points which are worth noting. For example, he says the threat of dangerous Climate Change from anthropogenic global warming has decreased. The satellite data indicates a decrease of sea level rather than an increase due to which the coral islands have an increase in area. Due to the kilometers deep basins, the alarmist model of ice cap sliding has vanished. There is no change in sea ice during the last 30 years. The CO₂ in the atmosphere and in the ocean are in equilibrium and any loss of CO₂ from the atmosphere can be balanced with the CO₂ in the ocean. There is reduction in the acidity of oceans. The author has studied the correlation between sun spots and climate and takes the Sun as the major climate controller rather than greenhouse gases and one can expect serious cooling. The world body IPCC uses computer data which are kept confidential and cannot be relied upon.

Researchers **Robert Fawcett**^[4] and **David Jones** say that year 1998 was the end of global warming and are waiting for Global Cooling. 2006 and 2007 were cooler than the years before that and a trend of cooling has been established.

In addition to the above, there are many news items, articles and papers prepared both scientifically and without any scientific basis appearing in the media. Some of them appear to be real but the global warming alarmists ignore them simply as cock and bull story. By reading the article by Lee Billings in the Scientific American (Jul. 31, 2013) "*Fact or Fiction : Can we push the Planet into a Run-away Greenhouse Apocalypse?*", the turmoil starts. It is neither warming nor cooling but extreme heating to create a catastrophe. Our atmosphere will be like that of planet Venus where the surface temperature is about 460°C. But, there is a consolation. Severe warming has also taken place in the mid Cenozoic era without causing any catastrophic effects. It does not mean that we should ignore the emissions and what is required is it should not continue at a runaway pace. An American meteorologist Anthony Watts highly skeptical of the warming theory blames the temperature recording stations which are poorly located and are within 100 feet of any artificial heat source. The observations and the readings are erroneous and not reliable.

IV. MITIGATION

The entire issue of Global warming is so complicated and is almost a chaos so as to seek the help of Edward Lorenz. With the anthropogenic emissions from chimneys and vehicles getting spread in the atmosphere faster due to the rotation of the Earth and even statistics cannot be applied to find out the source from which it originated. An industrial unit or many such units elsewhere in remote areas of the globe running without permission or license and emitting the gases is like the flap of a butterfly really to create a tornado for the masses and experience global warming. The sooner we act, the lower risk and cost. We are already on the run to get rid of the risks due to Climate Change, but at the same time, the time is running out. The need of the hour is a proper and effective audit on Climate Change. Exhaustive audit by IPCC already exists. A brief audit in the form of a flow-chart is given by **Nair V.C.A**^[6], author of this paper in his Ph. D thesis.



↓ Arrow of Authority

↑ Arrow of Response and Feedback

Necessary steps for Climate Audit:-

UN to various countries →

- Have you formed a separate Ministry for Environment?
- Investigate and submit a report regarding steps taken to control Greenhouse gases and Climate Change

Municipalities/Local bodies → As honesty in the system is very rare and denial being an easy answer, carry out surprise checks and enforce penalty.

What is required to stop global warming is,

- Stop anthropogenic emissions causing enhanced Greenhouse effect leading to global warming and Climate Change.
- Avoid deforestation and create more forestation. @There will be a need to plant 5100 million trees for offsetting carbon dioxide by 2051. One tree has the capacity to offset an average of about 10 kg of carbon every year.
- Enforce strict control on corruption in the system

@World Environment Day:” Warm gas may rise 300% in 4 decades” by National Environmental Engineering Research Institute, Nagpur, India. – June 5, 2012.

V. CONCLUSION

It is a tussle between ‘Warming’ and ‘Cooling’. The term ‘Warming’ is very much related to ‘Heat’ which is a form of Energy. For the common man or the non-scientist, the corresponding word is ‘Hot’. What then is ‘Cold’? As a physicist, I define ‘Cold’ as something which is less hot due to loss of heat energy. In similar terms try to explain global warming and global cooling. Both of them are above or below some accepted level by the world body. Thus, global cooling is inherent in the terminology of global warming and hence no arguments!

The world is not going to be a Sahara desert as envisaged by the global warming alarmists whose main focus was the future. On the contrary the supporters of the cooling theory studied the history of global warming and interpreted the future in terms of the past and concluded as natural cycles. At this juncture I would like to mention of a great physicist and some readers may not be aware that he talked of Climate Change some 150 years ago. It was **Lord Kelvin, Sir William Thomson, Baron**^[5](1824-1907) in the 1850’s talked of terrestrial climate influenced by the probably hotter Sun of a few million years ago. What the scientist wrote in the book in 1862 I reproduce here in his own words in Italics and in brackets

[(c) that most probably the Sun was sensibly hotter a million years ago than he is now. Hence geological speculations assumed somewhat greater extremes of heat, more violent storms and floods, more luxuriant vegetation and hardier and coarser grained plants and animals in remote antiquity, are more probable than those of the extreme quietist, or “uniformitarian” school. A middle path, not generally safest in scientific speculation, seems to be so in this case. It is probable that hypotheses of grand catastrophes destroying all life from the earth, and ruining its whole surface at once, are greatly in error.” It is impossible

that hypotheses assuming an equality of Sun and storms for 1,000,000 years, can be wholly true.] Readers should read between the lines of what Lord Kelvin said and draw their own conclusion.

I go by what the scientist said and leave things to the Nature. Nature by Herself is the greatest Physicist.

"Health is Wealth" is not a mere slogan. Before we try to be healthy, make the Earth healthy. Stop emitting anthropogenic emissions Allow Earth to maintain its processes without which life will be miserable. There is no question of any loss or gain. The principle of mass and energy will be maintained. Earth is both a most obedient servant and a best master. Preserve this divine planet by all means.

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