Global Warming – Global Cooling
Natural Cause Found
Controls Climate Cycles

Published and Researched

by

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Copies of this e-book are available through the Global Weather Oscillations Incorporated web site
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$9.95 per copy U.S. Dollars

Published and Printed by Global Weather Oscillations, Incorporated, Ocala Florida, USA. First Printing May 2008

Foreword

This e-book presents totally new scientific research findings concerning natural global warming – global cooling cycles, and was peer reviewed by 4 professional meteorologists. It was written for all to enjoy and learn the truth about Natural Global Warming and Carbon Dioxide Cycles.

Although the subject matter covers a wide range of climate change topics, this e-book provides a step by step guide through the topics, and provides explanations and definitions of terms for the lay person. It is intended for not only the scientific community, but also those concerned about the environment, college students, and high school students curious about the earth's climate cycles.

The reader will learn about regional high pressure systems controlling the world's climate, natural carbon dioxide and temperature cycles and why the current global warming cycle "is not caused by man". The reader will learn that carbon dioxide rises naturally following all natural rises in temperatures during global warming cycles. It will be shown that although the current temperatures and carbon dioxide levels are the highest in just over 400,000 years, this is a naturally occurring cycle responding to a natural forcing mechanism that forces displacements in the high pressure centers around the world.

Because global warming is a controversial and time sensitive topic, and because the research presented herein is too expansive for a scientific journal, it makes the most sense to present the findings of Mr. Dilley's research as a peer reviewed electronic (e)-book.

The major procedural differences between this electronic e-book and a hard copy journal are the time frame it takes for new findings to be published, and the length of the manuscript. Publication in a journal often takes a year, or longer, versus 3 to 5 months for an online e-book. The second important difference is e-book length versus a journal's accepted manuscript length. A scientific journal typically limits manuscript size to 8,000 words and 8 to 12 figures. To adequately document and present the findings, this e-book required 15,000 words and 28 figures.

This e-book offers 60 pages of groundbreaking research, majority of which was specifically developed and conducted by Mr. Dilley and Global Weather Oscillations Incorporated. Much of the research presented has never been published prior to this e-book. It demonstrates an extraordinary new approach with results on the actual causes for global warming that differ from the current widely believed causes for it.

Similar to a journal, this e-book was peer reviewed by professional meteorologists (4). These reviewers agreed to be listed because they believe the research was performed using acceptable methods in the meteorological community, and that the research has merit. The research for the e-book, was funded only by Global Weather Oscillations, Incorporated. No outside funding of any type was received.

Abstract

For the last 150 years, scientists have equated rises in atmospheric carbon dioxide concentrations to rises in global temperatures. The generally accepted hypothesis is that production of carbon dioxide by human burning of fossil fuel is the primary cause for the earth's current global warming.

Global Weather Oscillations Incorporated (GWO) was founded in 1992 with the specific understanding that most climate and weather occurs in cycles. This e-book presents 19 years of ongoing climate research conducted by Mr. Dilley. The surprising findings strongly suggest increased carbon dioxide from human activities is not the cause for global warming.

Building on prior research by Dr. Reid Bryson in 1948, further research by Mr. Dilley shows that global warming and cooling cycles occur naturally in response to specific long-term changes in the gravitation cycles due to variations within the moon's orbit. These gravitational cycles of the moon are related to the displacement of regional atmospheric surface high-pressure systems from their normal positions.

This e-book shows that longer-term variations in the gravitational orbit are primarily responsible for global warming and global cooling cycles. These cycles - "Dilley" Primary Forcing Mechanism (PFM) for climate, are made up of extended long-term cycles called Master Cycles, and shorter sub-cycles.

Temperature records derived from ice core samples and other historical paleoclimatic data sources, show that one such PFM Master Cycle occurs approximately every 925 years with global warming sub-cycles occurring approximately every 231 years, with even longer-term Master Cycles occurring approximately every 460,000 years, and its associated sub-cycles approximately every 116,000 years.

The Primary Forcing Mechanism (PFM) controlling these naturally occurring warming and cooling cycles are shown in detail, and demonstrate a greater than 90 percent correlation between the PFM cycles, natural global warming cycles, natural global cooling cycles, and the natural rise and fall of carbon dioxide cycles.

Sections within this e-book manuscript provide a step-by-step understanding of the earth's natural global warming and cooling cycles, natural carbon dioxide cycles, and the natural forcing mechanism that controls 7 different types of global warming and cooling cycles. It will be demonstrated that all of these 7 global warming cycles are all culminating at the same time, and are responsible for the current warmest cycle in 460,000 years.

Other findings indicate that polar ice becomes more extensive during colder portions of the 116,000-year and 231-year cycles, and in the process permafrost becomes covered with snow and ice for thousands of years. When this happens, gases such as methane and carbon dioxide are trapped, and the ice sheets likewise trap atmospheric air bubbles.

It will be demonstrated that as temperatures over the Antarctic increase naturally during the warmer periods of the mega 116,000-year cycles, atmospheric carbon dioxide likewise increases naturally in response to the melting of the polar ice and the complex natural carbon dioxide feedback system. It will also be demonstrated that the increase in carbon dioxide is in response to these natural cycles and similar to levels reached during the very warm mega warming cycle 425,000 to 460,000 years ago.

Section 10 of this -book provides a Global Warming and Cooling Forecast discussion for the year 2008 and beyond, including restoration and/or deterioration of the ice sheets, and the rise and fall in the natural carbon dioxide cycles.

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Scientists have made major climate research advances over the past 100-years by observing the ocean and atmosphere, especially over the past 15-years with the aid of computer modeling. Even so, researchers believe reliable climate forecasts still have a long way to go.

For instance, Morss and Battisti (2004) indicate that major hindrances still block the way to forecast improvement. These hindrances include observational errors in the initial conditions used by computer forecast models to initiate forecasts, errors within the models, and the chaotic characteristics of the coupled ocean and atmosphere. Computer models are only as good as the input data and information, so since the model is imperfect, so too is the forecast.

Recent grant funding for climate change research has mainly been directed toward the possibility that human influence, specifically the burning of fossil fuels, is the primary cause for global warming during the past 100-years. Because of this, research has been focused on fossil fuel emission topics. Not surprisingly, it has become widely accepted that the increase in industrial emissions of carbon dioxide during the past 150 years is responsible for the earth's global warming since about the year 1900.

Could carbon dioxide, a minor greenhouse gas 100 times less prevalent in the atmosphere than the major greenhouse gas water vapor, really cause global warming? Have there been similar global warming episodes throughout history? Did a similar rise in greenhouse gases occur without human influence?

To get a complete picture of global warming, we must examine earth's climate history and understand the climate changes that have occurred within the last half million years or more.

Scientists known as Paleoclimatologists reconstruct the earth's past climate changes by examining the extent of tree ring growth from one year to the next, thus determining colder weather versus warmer weather, or dry climatic periods versus wetter period. They also extract and examine ice core samples of glaciers containing trapped atmospheric air bubbles. These air bubbles contain a historical documentation of the earth's atmospheric gases over time. And in addition, Paleoclimatologists examine lake bed sediment to determine an historical map of plant pollen and other environmental by-products that have been deposited over thousands of years.

This e-book details how the Primary Forcing Mechanism (PFM) controls these naturally occurring warming and cooling cycles. This e-book also demonstrates a greater than 90 percent correlation between the PFM cycles, natural global warming cycles, natural global cooling cycles, and the natural rise and fall in carbon dioxide cycles. Further, this e-book demonstrates the culmination of 7 different global warming cycles are responsible for the current warmest cycle in 450,000 years.

The upcoming sections of this e-book provide a step-by-step understanding of the natural global warming and cooling cycles, natural carbon dioxide cycles, and the natural forcing mechanism that triggers and controls the 7 different types of global warming and cooling cycles.

Section 2 discusses prior research regarding temperature cycles and other atmospheric and oceanic cycles caused by variations within the moon’s orbit. Section 3 discusses how temperatures and carbon dioxide readings are derived for mapping earth’s historical climate cycles.

Section 4 provides a brief discussion on causes for global temperature cycles. Section 5 discusses the deficiencies in the hypothesis that support carbon dioxide as the major driving force of global warming.

Section 6 overviews the Primary Forcing Mechanism “PFM” responsible for natural global warming and global cooling cycles. Section 7 uses this knowledge to explain and demonstrate the PFM as Related to Global Warming and Cooling Cycles. These 2 sections abound with details, graphs, and tables that have not been previously published.

A section 8 and 9 discuss findings and summarizes the research presented. Section 10 provides a detailed Global Warming and Cooling Forecast discussion for the year 2008 and beyond--including restoration and/or deterioration of the ice sheets, and rises and falls in the natural carbon dioxide cycle.

2. Prior Research on Temperature Cycles Regarding Gravitation Cycles due to Variations within the Moon's Orbit.

Dr. Reid Bryson (1948) noted that anticyclones (high pressure centers) are often displaced northward by a couple degrees of latitude from their mean position, and then pulled approximately 1 to 2 degrees southward from the mean position during the following 2 week period.

Dr Bryson's studies looked at the mean positions of the subtropical high-pressure belt which is one of the two belts of high atmospheric pressure surrounding the earth. Their mean centers of high pressure are near 30 degrees north latitude and 30 degrees south latitude (Figure 1). Within these belts are the subtropical high pressure centers called oceanic anticyclones (in contrast, a low pressure center is called a cyclone). These centers of high pressure are called oceanic because they are centered and anchored over ocean areas rather than land.

The subtropical high pressure centers within this belt include what meteorologists call "semi-permanent" areas of high pressure. These semi-permanent high-pressure centers for the most part are located within boundaries of certain geographical areas, and are the major controllers of the earth's climate

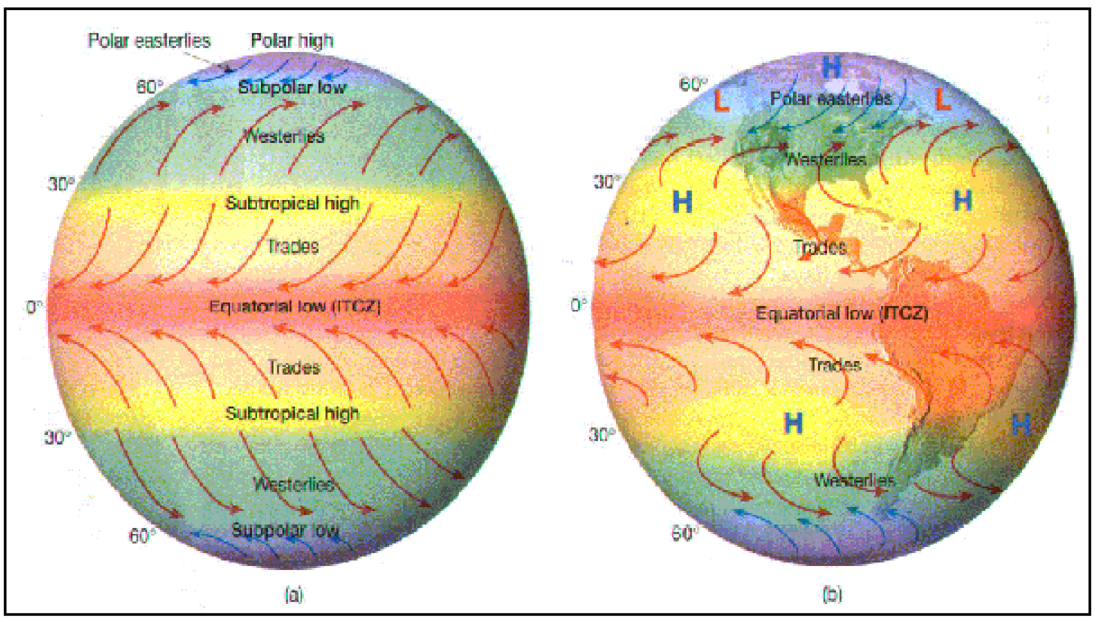

Figure 1: Figure on the left shows the subtropical high-pressure belt near 30 degrees north and south latitudes. Figure on the right shows the semi-permanent high-pressure centers over the Eastern Pacific Ocean and the Atlantic Ocean from the Gulf of Mexico east to Africa. Courtesy Hungarian Meteorological Service.

and weather. Anomalous displacement of these systems from their mean positions strongly control changes in regional storm tracks, strength of storms, regional monsoon seasons, the El Niño, regional droughts and the overall weather pattern. A longer-term displacement can cause an overall change in regional climate, or the earth's climate.

Two very important northern hemisphere semi-permanent high pressure centers are the Pacific High anchored off the southwest coast of the United States and Mexico, and the Bermuda High stretching from the Gulf of Mexico eastward across the Atlantic Ocean to near Africa. Any meandering or anomalous displacement of the Bermuda High strongly determines the path of the Atlantic and Gulf of Mexico hurricanes. Any changes in the Eastern Pacific High from year to year strongly determine the strength and position of the Aleutian Low Pressure Center near Alaska, formation and tracks of Pacific hurricanes and typhoons, and the weather patterns over much of the western portion of North America.

Other displacements of semi-permanent high-pressure systems within the earth's subtropical high-pressure belt can force other climate and weather oscillations around the world, including but not limited to the formation of the El Niño, monsoons, regional droughts and severe winters.

Recognizing that anomalous latitudinal positional changes of the Eastern Pacific Sub-Topical High can vastly implement changes in regional weather and climate, Dr. Bryson used 530 case studies to determine the anomalous latitudinal displacements of the mean position of certain high pressure systems. These anomalous displacements of the highs were then correlated with the monthly 13.5 day northward, and 13.5 southward progression of the moon's declination cycle (apparent position in the sky in relation to the equator).

Dr. Bryon then took the 530 case studies of the Eastern Pacific semi-permanent High-Pressure centers and compared them to the meridional gravitational tidal component of the moon. This is basically the monthly 13.5 day cycle of the northward progression of the moon's declination cycle and its associated latitudinal changes in the atmospheric and oceanic tidal forces portrayed onto the earth.

Results of his study determined that latitude anomalies (displacements) of the Eastern Pacific anticyclone (high pressure center), and the subtropical high-pressure belt, corresponded to the tide-producing force of the moon, and these latitudinal displacements corresponded to the 13.5 day changes in the lunar declination cycles.

Most importantly, Bryson (1948) indicated that as the moon's declination moves northward during the first 13.5 days of its 27.3-day lunar cycle (see Figure 2), the eastern Pacific subtropical anticyclone (high pressure center) is likewise

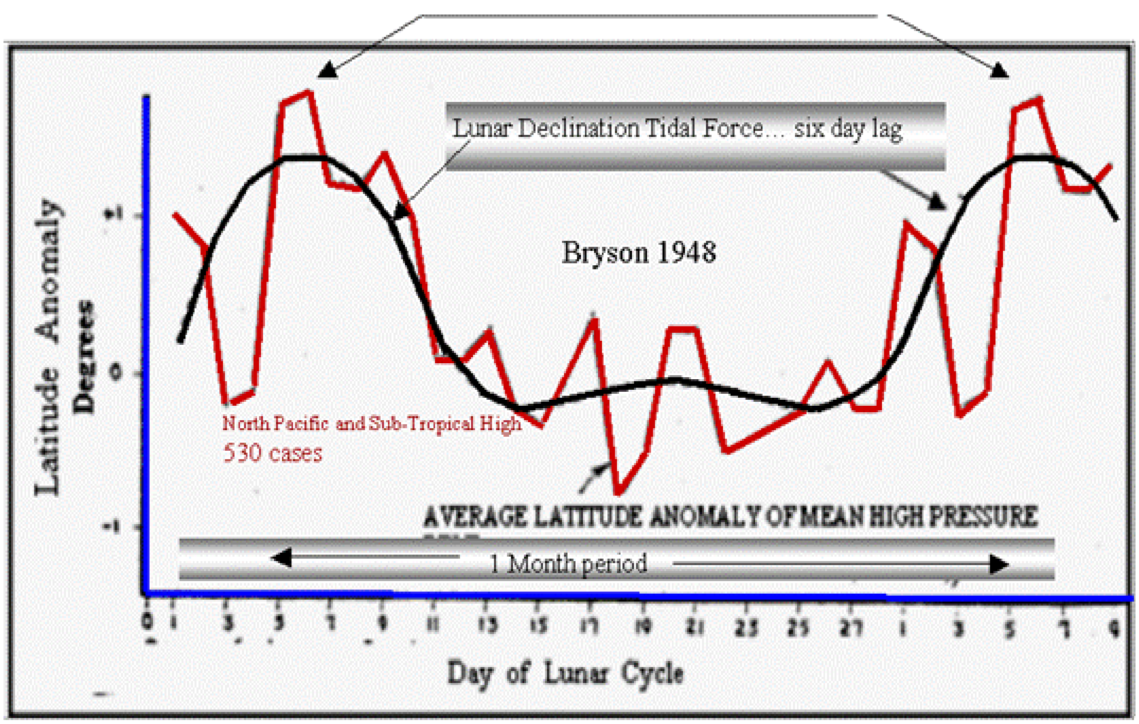

Figure 2: Plot by Bryson comparing observed latitude anomalies (displacements) of the mean subtropical high-pressure belt with the Moon's meridional tidal component (northward or southward latitudinal change). Notice how the (solid line) average latitude anomaly of the mean high-pressure center is displaced in direct correlation to the latitudinal change in the lunar declination forcing (dashed line).

pulled northward by the gravitational forcing of this change in the moon's declinations.

Then, as the lunar cycle enters the second half of its 27.5 day cycle, the lunar declinations and its associated gravitational force likewise moves southward during the course of the following 13.5 days. In doing so, the gravitational force from the latitudinal declination change pulls the anticyclone (high pressure center) southward as well. Bryson also indicated that this gravitational forcing has similar effects on the subtropical high-pressures belt.

It was shown earlier in this section that the very important subtropical high pressure belt circling the earth is located near 30 degrees north latitude, and near 30 degrees south latitude. It will be demonstrated in following sections that the gravitational declination cycles effecting the subtropical belt varies between the equator to 28 degrees above the equator, with these cycles causing gravitational north and south tugging on the earth's atmosphere and oceans.

If the moon's declination cycles cause monthly or long-term displacements of these subtropical high pressure centers in the order of 3 or 4 degrees of latitude, this equates to a latitudinal displacement of about 4442 km (275 miles) at 60 degrees north latitude and 222 km (137 miles) near the equator. This is why the influence of the moon's gravitational declination field has such profound effects on the displacement of semi-permanent high pressure centers, on the earth's weather, and the forcing of global warming and cooling cycles.

Other researchers have found anomalous changes in the atmosphere or oceans in conjunction with lunar cycles, and have noted cyclical displacements and changes in anticyclones, some of which occur just prior to the onset of an El Niño, or during the early stages of development.

For instance, Chapman (1939) found small semi-diurnal (twice daily) lunar tides in the atmosphere of (0.06mb). Namias (1955) noted the long-term displacement of subtropical high-pressure regions and what he later called teleconnections between displacements of the subtropical high-pressure regions and global wind patterns that are today routinely reported in the popular press as El Niño events.

Rosenberg (1974) noted a teleconnection between what he suggests as atmospheric subsystems regulating resonances in the weather, and the displacement of high and low pressure regions with a near 27-day resonance (much like the moon's 27.3 day cycle that will be discussed). Dvoryaninov and Eremeev (1992) have shown that large upwelling, instability waves and sharp temperature fronts develop along the Intertropical Convergence Zone with periods of only 30 days. This suggests an oscillation with the period of a month, with the most energetic peak occurring at a period of 29 days.

With all of these atmospheric and oceanic occurrences corresponding with the harmonics of the moon's gravitation cycles, it can thus be hypothesized that these changes likewise correspond with Bryson's findings concerning monthly anticyclone displacements, and wind changes due to these displacements.

Other researchers have investigated even longer cycles of the moon, and according to Meeus (1981) and Woods (1986), the most notable gravitational cycles are the approximate 93-year, 62-year, 55-year, 18.5-year, 9-year, and 1.13-year cycles.

Research conducted for this e-book manuscript also notes very important declination cycles associated with climate change on the order of 4.6-years, 9-years, 72-years, 231-years, 925-years, 5,000-years, 116,000-years and 460,000-years. Fortunately, these lunar cycles can be forecast mathematically many years in advance, or many years back through the earth's history.

3. Derived Past History of Global Temperatures from Ice Cores

Researchers have known for a long time that the earth has experienced many temperature and carbon dioxide cycles during the past million or more years. These researchers are called Paleoclimatologists, and it is their job to research and reconstruct what the earth's climate has looked like over time.

The reason ice core samples are important to Paleoclimatologists studying the past history of earth, is that the Northern Hemisphere's Arctic region and the Southern Hemisphere's Antarctic region have massive reservoirs of glaciers and ice sheets that took literally hundreds of thousands of years to accumulate.

For ice sheets and glaciers to form, sea ice thickens and expands its coverage, and snow is deposited over these cold northern latitude areas. The glaciers and ice sheets are formed over the course of hundreds or thousands of years during the process in which snow is compacted to form ice, or any rainfall is frozen. During this formation process, bubbles of air from the atmosphere are trapped within the ice. And what is within these air bubbles? Atmospheric gasses such as oxygen, methane and carbon dioxide that comprised the atmosphere at that point in time the air bubbles were trapped.

By drilling ice core samples, then processing and extracting these air bubbles through a complex process, researchers are able to measure the amount of various gases over time in relation to the age of the ice core sample. Once this process is finished, Paleoclimatologists are able to chart past climates of earth, and record temperature and carbon dioxide trends during the past 420,000 years.

One of the most important sites for ice core samples is the Lamont-Doherty Earth Observatory at Lake Vostok in the Antarctic. As seen in Figure 3,

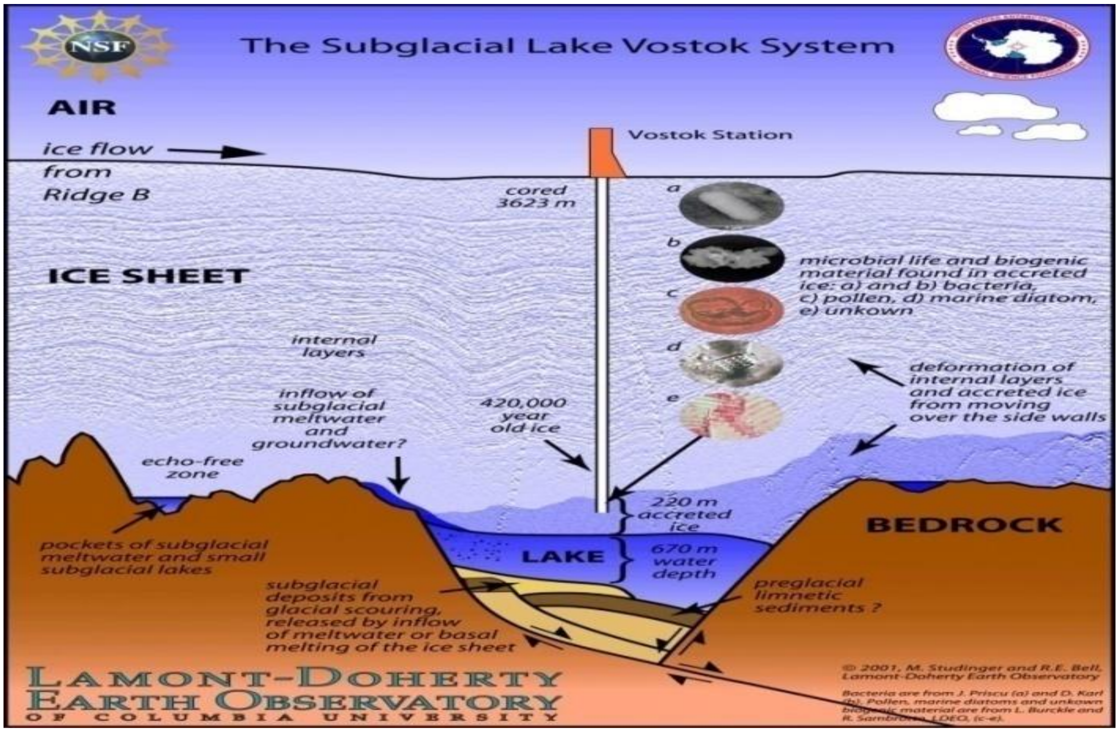

Figure 3: A pictorial by Lamont-Doherty Earth Observatory of Antarctic ice core drilling at Lake Vostok. Drilling has reached nearly 3,623 meters down to the bottom of the ice sheet, with the age of the ice at this level 420,000 years old.

scientists have drilled 3,623 meters down to near the bottom of the ice sheet, with ice at that level recorded as 420,000 years old.

Knowing the age of the ice, it becomes very important to note that Lake Vostok was nearly void of ice approximately 420,000 years ago as rapid ice sheet melt occurred during the first temperature cycle. This is very much like earth today. The melting Arctic and Antarctic ice sheets places our climate at the peak of an approximate 116,000-year natural temperature and carbon dioxide cycle.

Sowers and Bender (1995), Petit et al (1997), and Fischer et al (1999) are Paleoclimatologists, and they have examined data retrieved from the Lake Vostok ice core samples, and from other climate data such as tree rings and lake bottom sediment, they have found remarkable temperature and carbon dioxide cycles going back 420,000 years before present.

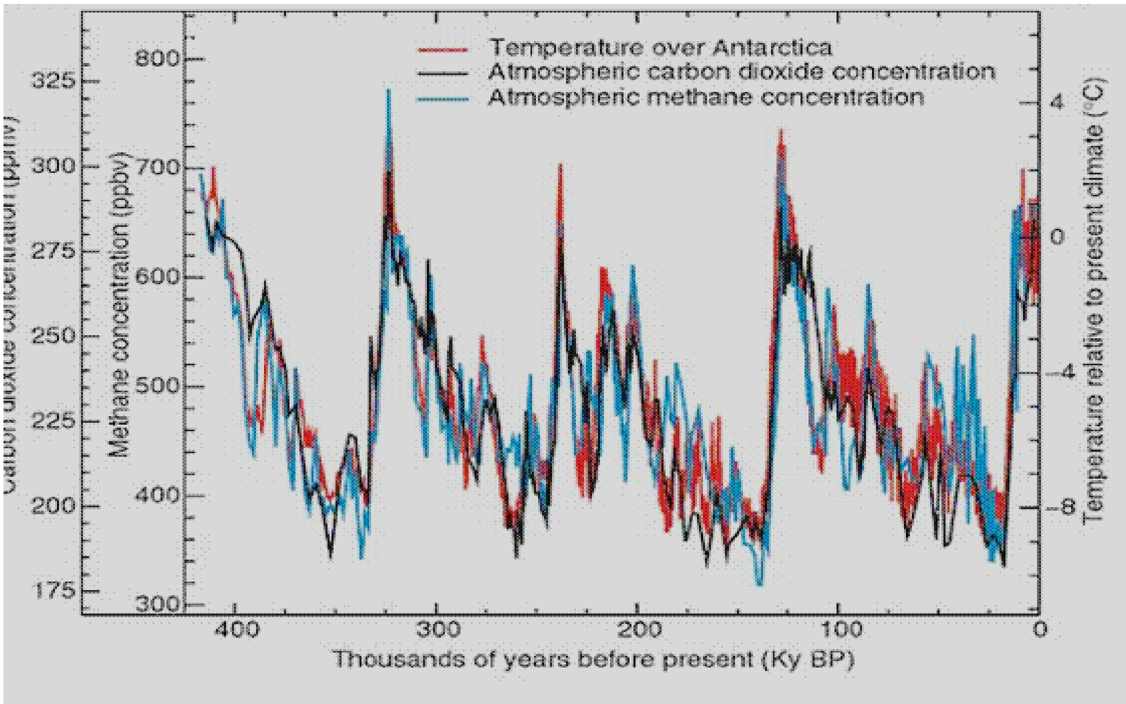

Figure 2.22: Variations of temperature, methane, and atmospheric carbon dioxide concentrations derived from air trapped within ice cores from Antarctica (adapted from Sowers and Bender, 1995; Blunier et al., 1997; Fischer et al., 1999; Petit et al., 1999).25

Figure 4: Plot of temperatures over Antarctica (red lines) during the past 420,000 years and atmospheric carbon dioxide (dark line) as extracted from ice core samples. Notice the 5 mega global warming cycles – and the following increases of natural carbon dioxide cycles.

Figure 4 depicts 5 temperature cycles during the spatial period from approximately 420,000 years ago to the present time. Of great importance are the temperature and carbon dioxide plots. Notice that the atmospheric carbon dioxide increases as the temperatures increase during each mega global warming cycle, and they both decrease in phase after the peak of each approximate 116,000 year cycle is reached.

According to Barnola et al (1991), the natural carbon dioxide increases recorded in all of the cycles are not prior to the increases in temperature, but are either in phase with the natural temperature increases, or likely lag by less than

1,000 years. Barnola also indicated the carbon dioxide cycle “clearly lagged” behind temperature decreases following each approximate 116,000-year temperature peak. Therefore it is very likely that the atmospheric temperatures naturally increase first, followed by natural increases in carbon dioxide.

To put the role of carbon dioxide and temperature increases in perspective with global warming, it is important to understand that carbon dioxide is not only introduced into the atmosphere by human activity, but a majority of carbon dioxide is introduced through a natural feedback system.

For instance, Figures 9 through 13 depict mean atmospheric carbon dioxide concentrations rising from near 200 parts per million during the colder portion of the natural 116,000 year mega temperature-carbon dioxide cycles seen in Figure 4, to a mean of near 300 parts per million at the crest of the warm phase. These nearly 50 percent rises are caused by a very complex natural feedback system during all global warming cycles, and are not caused by man’s influence.

Rind (2003) indicates that as snow and ice melts in high latitudes during warming cycles, permafrost becomes exposed, and thus allowing gases trapped thousands of years ago to be released into the atmosphere. As the high latitudes warm during all global warming cycles and sea ice declines, newly exposed thawing of arctic soils may release significant amounts of carbon dioxide and methane, and slightly warmer ocean water may release frozen natural gases trapped in the sea floor.

Other natural factors contribute to the rise of carbon dioxide during these cycles. Air bubbles trapped in ice and snow thousands of years ago are suddenly released during melting. The water droplets that held the trapped air find its way back into oceans and lakes, with an unknown portion of air bubbles released back into the atmosphere as water evaporates over land areas.

Another contributor is old vegetation left behind during warm cycles, and then covered by snow and ice during the colder portions of the approximate 116,000-year cycles, and suddenly exposed again during global warmings. All of this decaying old vegetation releases carbon dioxide.

This is a very complex feedback system that exhibits natural 50 percent increases in carbon dioxide during periods of global warmings. Just imagine carbon dioxide being stored as the ice sheets thicken and expand during the coldest portion of each 116.000-year mega global warming cycle (Figure 4).

Then, on each 5^{th} mega global warming cycle which occurs approximately once every 450,000 years, as it did when Lake Vostok was nearly void of ice, the ice sheets begin melting and retreating slowly over the course of 5,000 years. Then as this mega global warming cycle and its associated smaller sub warming cycle's peak, a great melt down takes place over the course of only 100 years! Glaciers recede rapidly, ice sheets thin and nearly disappear, permafrost begins thawing, old vegetation becomes exposed, and suddenly large quantities of trapped carbon dioxide from thousands and thousands of years ago is suddenly introduced, or re-introduced into the atmosphere.

And what happens when this occurs? Temperatures continue rising due to the natural temperature cycle within this mega global warming cycle and carbon dioxide also naturally rises rapidly over a 100-year period because of this re-introduction (see Figure 4).

During all of these re-introduction phases, carbon dioxide levels rise rapidly, reaching levels we thought impossible, from mean measurements of 180 part per million (ppm) at the coldest portion of the mega temperature cycle, to a mean near 300 ppm every 116,100 years. And because the ice core measurements of carbon dioxide are averaged and smoothed over a 200 to 500 year period in order to eliminate disparities within the ice, a mean value is calculated.

Because of this smoothing, any natural carbon dioxide spikes occurring during a 50 to 100 year period are smoothed and the resulting values are dampened and lower than real time instrument readings taken today. Thus the end result of the reconstruction shows a smoother incline, and no brief spikes in values.

Therefore, actual short term increases and dips in carbon dioxide levels actually vary by approximately plus or minus 10 to 20 percent from the mean value, thus a reading of 180 ppm at the coldest portion of the 116,000 year mega cycle, may have an 80 year deviation from 160 ppm to 200 ppm, and a mean reading of 290 ppm at the peak of a 116,000 year mega cycle may have a deviation of 319 to 348 ppm, and likely higher than this during the mega warming over 400,000 years ago.

As temperatures begin increasing from the lowest point of the 116,000-year temperature and carbon dioxide cycle, it takes only 7,000 to 15,000 years for temperatures to rise rapidly and carbon dioxide concentrations to likewise rise rapidly in response to the warming, from less than 200 parts per million (ppm) to 280 ppm or greater as the cycle approaches the pinnacle of the 116,000 year mega global warming cycle. It is at this point that there is a more rapid ice sheet melt due to the higher atmospheric temperatures, and a steep 40 to 50 percent increase in carbon dioxide concentrations in the atmosphere over the course of a few thousand years.

Has this ever happened before? Yes, it has happened 4 other times during the past 450,000 years, and it has been in the process of occurring again from 1930 to 2008. It will be shown in following sections that every mega global warming and cooling cycles has a sub warming and cooling cycle, with an approximate 50 to 80 year deviation spike that depicts an even greater rise in ppm of carbon dioxide.

Finally, as the crest of the 116,000 year mega cycle is achieved, the mean carbon dioxide concentrations begin leveling off between 280 to 310 ppm, with short term spikes likely reaching as high as 330 to 380 ppm.

The next few sections will discuss all 7 global warming master and sub cycles, the mean carbon dioxide ppm values, and describe the hypothesis that the present readings of 385 ppm are in line with a natural cycle, and not caused by the burning of fossil fuels. It will also be shown that once the peak of the mega global warming cycle has been reached; temperatures and carbon dioxide levels decrease with each succeeding approximate 231 year sub global warming cycles.

4. Global Temperature Cycles

It was noted in Section 2 that semi-permanent subtropical high-pressure centers for the most part are located within boundaries of certain geographical areas, and are the major controllers of the earth's climate and weather. Anomalous displacement of these systems from their mean positions strongly control changes in storm tracks, strength of storms, and the overall weather patterns. A longer-term displacement can cause an overall change in a regions climate, or the earth's climate.

It was also noted that any meandering or anomalous displacement of the Bermuda High strongly determines the path of the Atlantic and Gulf of Mexico hurricanes. Any changes in the Eastern Pacific High from year to year strongly determine the strength and position of the Aleutian Low Pressure Center near Alaska, and the weather patterns over the western portion of North America.

Other displacements of semi-permanent high-pressure systems within the subtropical high-pressure belt can force other climate and weather oscillations around the world, including but not limited to, the formation of the El Niño, monsoons and regional droughts. But what about global warming and global cooling cycles, could they be caused by a longer- term displacement of semi-permanent high-pressure centers?

As noted earlier, and shown in full detail later in this e-book, the earth is now at the peak of all 7 PFM (Primary Forcing Mechanism) cycles, and this is why the earth is as warm as it was 420,000 to 460,000 years ago. If warming and carbon dioxide cycles are this regular in time and space, then what external Primary Forcing Mechanism could possibly have the same regular harmonics and display enough mechanical energy to force natural climate cycles?

In the past 19-years, I conducted climate research by picking up where Dr. Bryson left off, and discovered a very powerful external forcing mechanism that causes shifts in regional weather cycles, regional high pressure systems, and the world's climate. This Primary Forcing Mechanism", or (PFM) is a cyclical "natural" forcing mechanism of the moon's strong gravitational declination cycles.

It has long been known that the moon's gravitational cycles display tremendous gravitational pull on the earth's oceans, and this research demonstrates that long-term declination cycles likewise display a greater role in atmospheric and oceanic tides than previously thought by other scientists.

The end results indicate declination cycles cause a natural earth rhythm of global warming and cooling cycles, and natural cycles of carbon dioxide as related to these cycles.

Because the global warming – and cooling cycles are controlled by a naturally occurring external Primary Forcing Mechanism" (PFM), all mega and sub global warming cycles have a slight spatial variance in occurrence. Therefore the cycles listed here are mean values, and vary slightly from one cycle to the next in accordance with the PFM cycles.

It was found in this research that all 7 global warming cycles occur on a fairly regular basis (PFM and global warming cycles), with a recognizable pattern, very similar harmonic sinusoidal wave patterns, and that all cycles have a Master Cycle and 4 sub-cycles.

The cycles are the 460,000 Master Cycle and its 116,000- year sub-cycles; the 116,000 Master Cycle and its 5,000-year sub-cycles; the 5,000 year Master Cycle and its 925-year sub-cycles; the 925 year Master Cycle and its 72-year sub-cycles; and finally the 72-year Master Cycle and its 9-year sub-cycles.

Other researchers have investigated many cycles of the moon, and according to Meeus (1981) and Woods (1986), the most notable gravitational cycles are the approximate 93-year, 62-year, 55-year, 18.5-year, 9-year, and 1.13-year cycles.

Research that was done for this paper notes very important declination cycles on the order of 4.6-years, 9-years, 231-years, 925-years, 5,000-years, 116,000-years, and 460,000-years. Fortunately, these lunar cycles can be forecast mathematically many years in advance, or many years back through the earth’s history.

Upcoming sections in this e-book will provide a step by step understanding of the natural global warming and cooling cycles, natural carbon dioxide cycles, and the natural forcing mechanism that triggers and controls 7 different types of global warming and cooling cycles.

5. Natural Carbon Dioxide Cycles and Industrial Carbon Dioxide Emissions

The basic accepted definition of global warming is a gradual increase in the temperature of the earth's surface since about the year 1850. The Intergovernmental Panel on Climate Change (IPCC) adds that global warming is caused primarily by human activities, and some believe that it could result in run-away increases in atmospheric and land temperatures.

The human activities that are believed to contribute significantly are the industrial emissions of fossil fuel burning since the mid 1850s. The theory goes that the increase of fossil fuel burning has resulted in an increase of the earth's atmosphere absorption of the greenhouse gas carbon dioxide, which relates to an increase in global temperatures.

A detailed graph study of average global temperatures reveals that it is incorrect to state that the cause of any temperature increase is mostly due to human activities. Yes it is correct to state that mean temperatures have generally increased during the past 150-years. However, it is incorrect to imply that temperatures have increased steadily, or are in an unstoppable runaway climb.

Figure 5 on the next page, actually shows a very uneven increase in temperatures for the United States since the year 1880 (global temperatures are similar). Notice the 2 very warm periods in the 1930s and 2000-2007, and a quite cool period sandwiched between the other global warming cycles (shaded in blue).

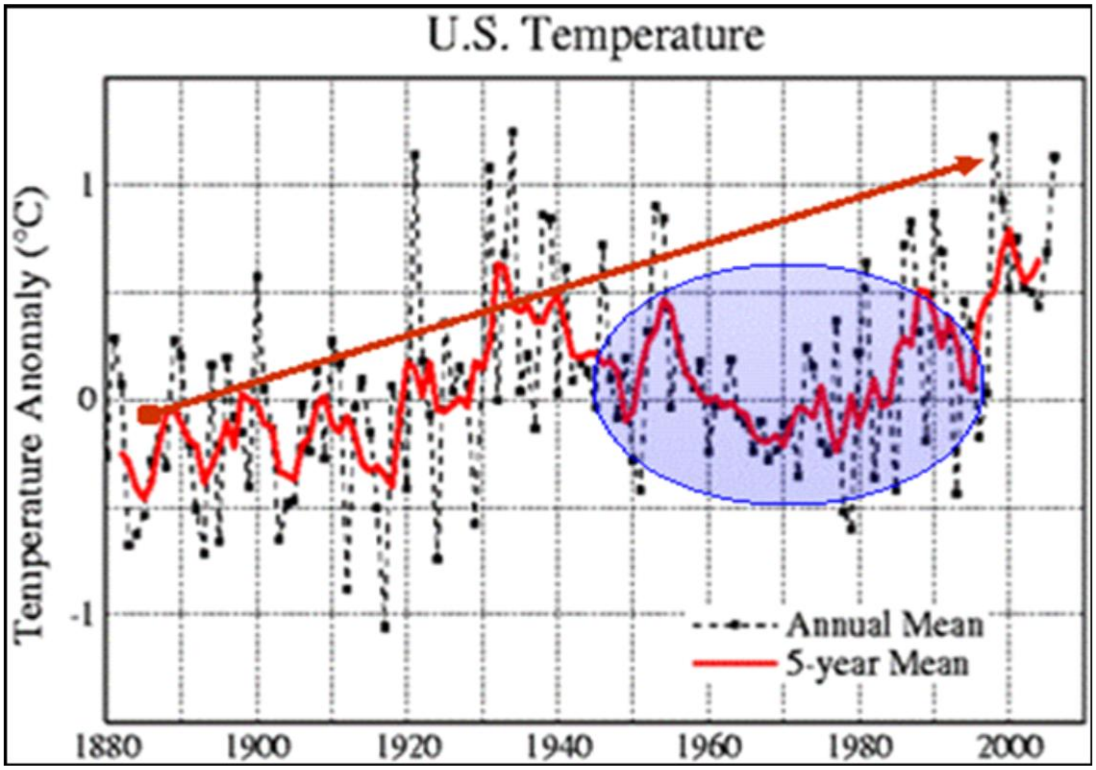

Figure 5: From NASA United States. Temperature trend shows a peak in the1930s when carbon dioxide emissions were down (figure 7), and cooling from 1942 to 1988 when carbon dioxide emissions were increasing. The global temperature trend was very similar to the trend shown here.

It will be shown later in this e-book that all global warming cycles have twin temperature peaks separated by about a 70 year period, and that this has historically occurred during all 5 global warming cycles during the past 1,000 years. Similar cycles are also seen within the larger mega 116,000-year cycles during the past 460,000 years. These cycles are discussed in the next section.

As seen in Figure 6, atmospheric carbon dioxide concentrations have increased since 1870, with a much sharper increase occurring from 1930 to present. But what is conflicting about the accepted link between carbon dioxide increases and increases in global temperatures, is the fact that industrial emissions of carbon dioxide were actually relatively stable from the year 1850 to 1950 and this was at a time when atmospheric carbon dioxide (ppm) increased

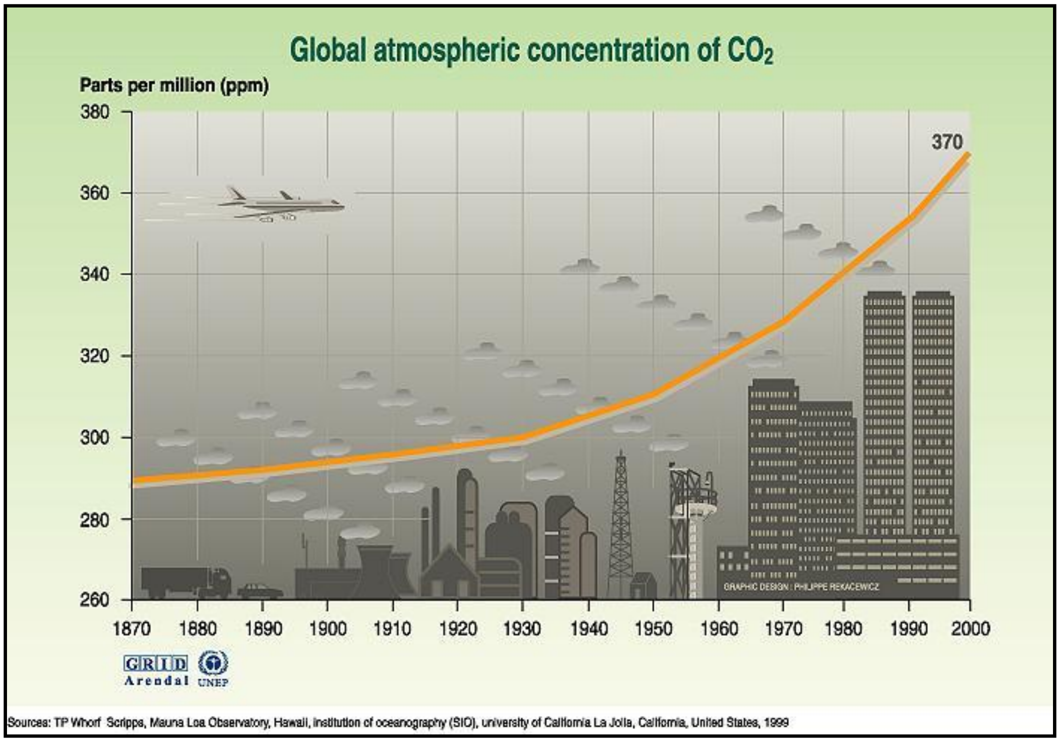

Figure 6: Shows atmospheric carbon dioxide increasing steadily from 1930 to present. Source: TP Whorf Scripps, Mauna Loa Observatory, Hawaii, Institution of Oceanography (SIO), University of California La Jolla, California, United States 1999.

even more rapidly from 1930 to 1950 (see Figure 6).

Even more conflicting is a large decrease in industrial carbon dioxide during the 1930s and 1940s (see Figure 7), when atmospheric carbon dioxide accumulations started increasing more rapidly, and a point in time that global temperatures hit their first warm peak in the 1930s.

Likewise conflicting with the human causality of the global warming hypothesis is that Figures 6 and 7 show an overall rapid increase in carbon dioxide ppm from 1930 to 1988, and a very rapid increase of the industrial output of carbon dioxide. However, Figure 5 shows that global atmospheric temperatures actually decreased significantly during this 48-year period when carbon dioxide concentrations and outputs increased.

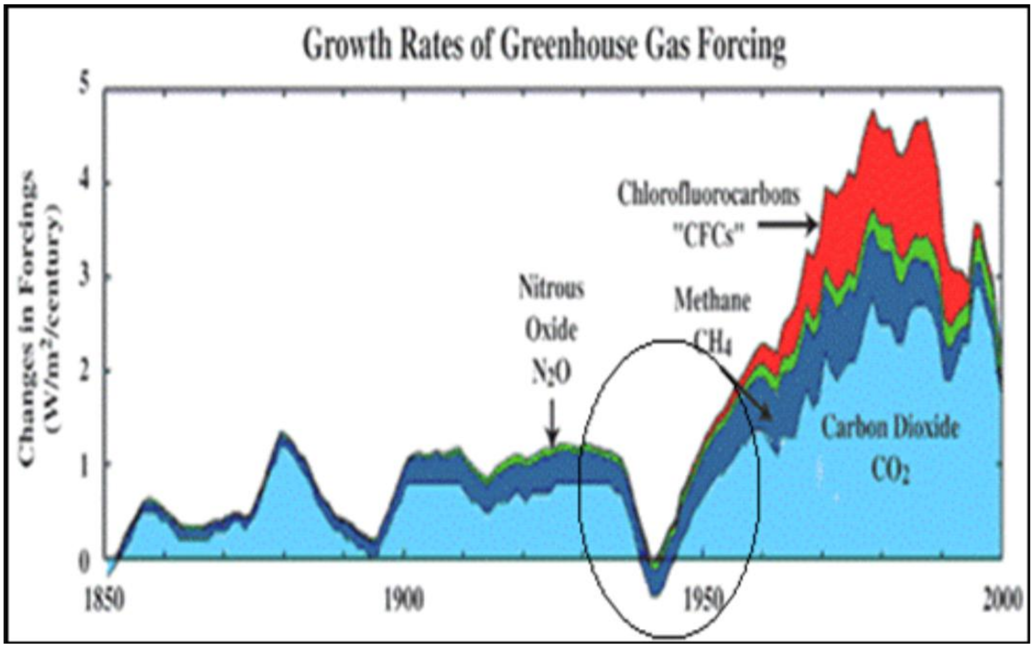

Figure 7: This graph shows atmospheric carbon dioxide increasing steadily from 1930 to present. Data provided by Hansen of NASA's Goddard Institute for Space Studies and Makiko Sato of Columbia University.

Summarizing the above discussion, mean values of atmospheric carbon dioxide concentrations steadily increase as industrial emissions decrease, and atmospheric temperatures decrease as carbon dioxide increases! This certainly is different from the hypothesis that carbon dioxide is causing global warming.

An examination of Figure 8 which depicts the reconstruction of an approximate 420,000-year history of temperatures and carbon dioxide over the Antarctic, shows increases in carbon dioxide (dark line plot) followed the same sinusoidal curve as the air temperatures (red line plot). Peaks and valleys of each are on the same cycles, although likely lagging the temperatures by as much as 100 to 900 years.

Five mega climate warming cycles are shown in figure 8 in which atmospheric temperatures peaked over the Antarctic approximately every

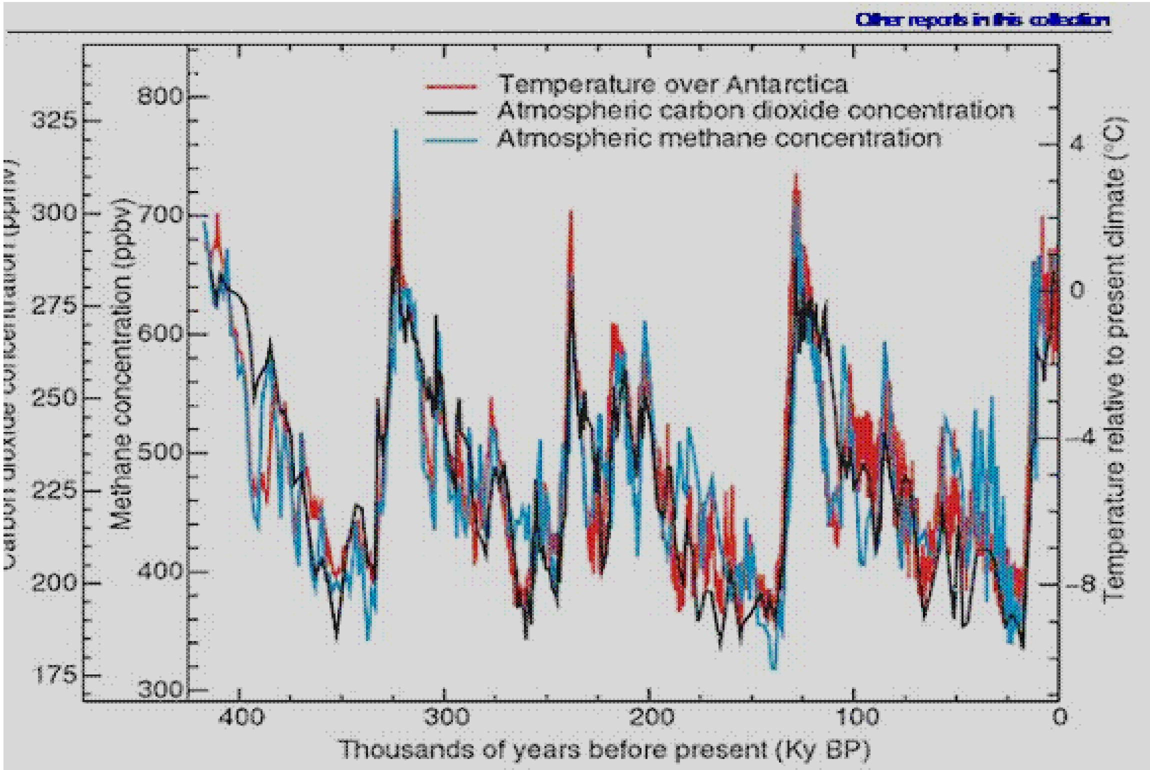

Figure 2.22: Variations of temperature, methane, and atmospheric carbon dioxide concentrations derived from air trapped within ice cores from Antarctica (adapted from Sowers and Bender, 1995; Blunier et al., 1997; Fischer et al., 1999; Petit et al., 1999).25 years.

Figure 8: Mega global warming cycles and natural carbon dioxide cycles from 420,000 years before present, to present (on the right side of the graph). Temperatures are plotted in red, and carbon dioxide in dark color following temperature increases by 100 to 900 years.

116,000 years. Also of great interest is the time line for carbon dioxide in relation to the historical temperatures.

The graph clearly shows increases in carbon dioxide (dark line plot) followed the same sinusoidal curve as the air temperatures, thus peaking and lulling on the same cycles, although likely lagging the temperatures by as much as 100 to 900 years. There was, of course, no influence from human activities on earth during these cycles. So it is reasonable to put forth a hypothesis that the “natural” temperature cycles occurred first, and then carbon dioxide concentrations followed.

It should also be noted at this point that carbon dioxide is a relatively minor greenhouse gas produced by fossil fuel burning and natural sources such as volcanic activity, animals, decaying vegetation and other natural sources. The only real importance of carbon dioxide within this e-book study, is that it can be used as a historical tool to examine past climates, with the end results determining the hypothesis that carbon dioxide cycles have always occurred in natural cycles in response to natural temperature cycles, and that man’s influence has little to do with the current global warming cycle.

To get a clearer picture of historical carbon dioxide fluctuations, a close examination of Figure 9 shows 5 natural mega carbon dioxide cycles from current

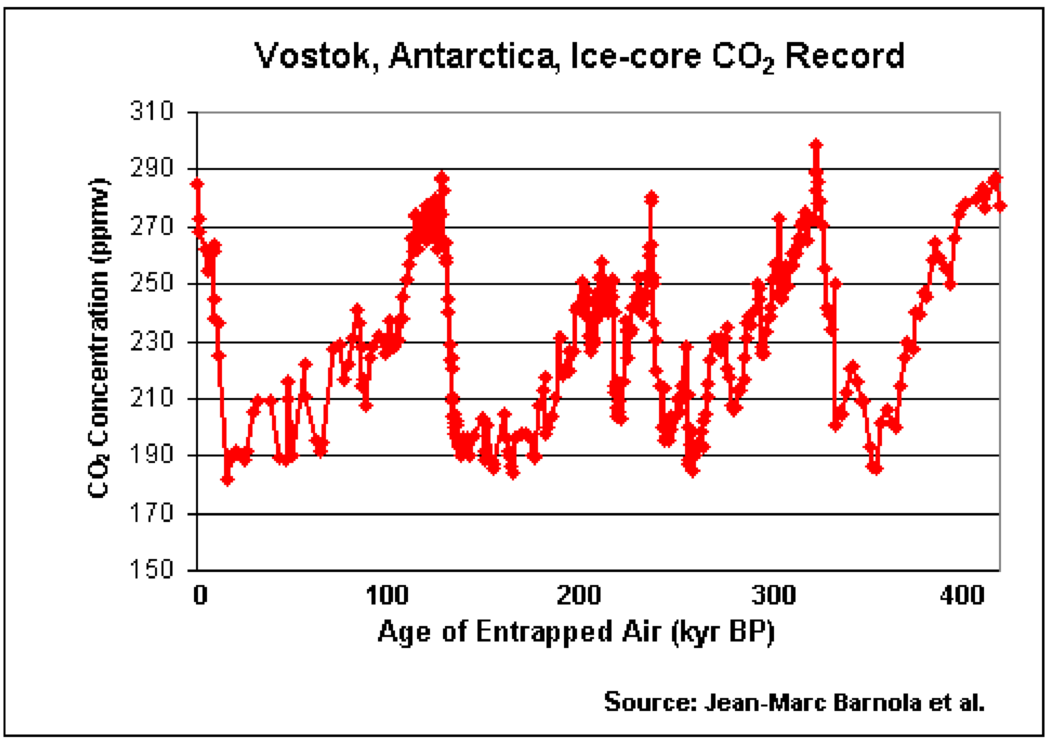

Figure 9: Atmospheric carbon dioxide concentrations as derived from the Lake Vostok ice core samples for the period 417,160 to 2,342 years before present. Present time is on the left side of the graph, Courtesy of J.-M. Barnola, D. Raynaud, C. Lorius.

time to approximately 420,000 years before the present time (from left to right in graph). The graph also shows that the current cycle is likely at the crest, as is the temperature cycle shown in Figures 8 and 9 (right side of graph).

Looking again at Figures 8 and 9, a particularly high carbon dioxide cycle reaching a mean of 299 parts per million (ppm) occurred 310,000 years ago and two lower mean carbon dioxide ppm cycles near 225,000 years ago, and near 110,00 years ago.

It was previously noted that Lake Vostok was nearly void of ice about 425,000 years ago, and thus temperatures and carbon dioxide concentrations were likely similar to those being recorded today. If this hypothesis is correct, the 3 cooler mega cycles noted in the previous paragraph and shown in Figure 9, would have lower natural feedback carbon dioxide levels than either the very warm cycle 425,000 to 460,000 years ago and the present day very warm 116,000 year mega cycle.

To illustrate this hypothesis, a study and analysis of the carbon dioxide rises during each of the approximate 116,000 year mega cycles from 3330,000 before present time to present were analyzed. The initial analyses of the 3 mega cycles prior to the current cycle, indicates that it takes 7,000 to 15,000 years for the natural carbon dioxide concentrations to rise rapidly from its lowest cyclical values to peak values at the crest of each mega cycle (see figures 8 and 9). The current mega 116,000 cycle registered the last of the lowest carbon dioxide levels below 200 ppm approximately 15,000 years before present, thus indicating the current mega cycle has reached the crest.

Tables shown in figures 10-13 show natural cyclical rises in atmospheric carbon dioxide prior to the natural 116,000 year temperature peaks. Knowing the last ice age ended approximately 10,000 years ago (see figure 24), and that the current 116,000 year natural temperature and carbon dioxide cycle has likely reached its peak and will begin diminishing within the next 900 years (see right side of figure 8), the following 4 tables examine the natural rises in atmospheric carbon dioxide concentrations during the warm 10,000 year period leading up to the crest of the last three 116,000 mega cycles, and the current mega cycle. The carbon dioxide ppm readings were extracted from the Lake Vostok ice core samples in Antarctica.

As seen in Figure 10, the record for the mean age of the air containing carbon dioxide (see rows 5 to 1 on left side of the table) is for the period from the year 333,627 before present to the temperature and carbon dioxide crest 323,485 years before present time.

The period of record as seen at the bottom of the second Column is approximately 10,142 years. As seen in the third column, the carbon dioxide ppm

	Mean Age of Air before present in years	Time from Initial Sample In years	CO2 PPM	CO2 Increase	Total CO2 Increase	Total Percent Increase Past 10,000 Years
1	323,485	0 years	299 ppm	13 ppm	98 ppm	49 percent
2	324,991	1,506	286	15	85	
3	326,239	2,754	271	21	70	
4	332,293	8,708	250	49	49	
5	333,627	10,142	201 ppm			

Figure 10: This table shows a 49 percent natural increase of carbon dioxide from 201 ppm to 299 ppm during a 10,000 year period just prior to the natural 116,000 year temperature peak. Data derived from the Lake Vostok ice core samples from 333,627 to 325,527 before present.

increased from 201 ppm to 299 ppm (noted in red) at the crest of the mega global warming cycle, an increase of **49 percent** during the examined period. It is noted on the right side of the table that the total carbon dioxide ppm increase was 98.

During the next mega 116,000 year global warming cycle shown in figure 11, carbon dioxide concentrations began at 195 to 200 ppm approximately 243,653 years ago. During the first 5,000 years, levels remained steady around 195 to 204 ppm and then rose sharply over the course of next 5,454 years to 280 ppm at the peak of this 116,000 year mega cycle – representing an overall **44 %**

	Mean Age of Air before present in years	Time from Initial Sample In years	CO2 PPM	CO2 Increase	Total CO2 Increase	Total Percent Increase Past 10,000 Years
1	238,199	0	280 ppm	16 ppm	85 ppm	42 to 44 percent
2	238,935	736	264	34	69	
3	240,201	2,002	230	16	35	
4	242,068	2,869	214	14	19	
5	243,653	5,454	200	5	5	
6	244,863	6,664	195	0	0	
7	246,090	7,891	195	-5	-5	
8.	248,980	10,781	204			

Figure 11: This table shows a 42 to 44 percent natural increase of carbon dioxide from 195 ppm to 280 ppm during an approximate 8 thousand year period leading up to the crest of the natural 116,000 year temperature peak. Data derived from the Lake Vostok ice core samples.

increase, and 85 ppm.

During the third approximate 116.000 year mega global warming cycle shown in figure 12, carbon dioxide concentrations began at 190-192 ppm approximately 138,226 years ago. The carbon dioxide concentrations then increased during the next 8 to 10 thousand years to 287 ppm at the peak of this 116,000 year mega global warming cycle. This represents a **51% increase** in natural carbon dioxide ppm concentrations.

	Mean Age of Air before present	Time from Initial Sample	CO2 PPM	CO2 Increase	Total CO2 Increase	Total Percent Increase Past 10,000 Years
1	128,399	o	287 ppm	23 ppm	97 ppm	51 percent
2	129,411	264	264	0	74	
3	130,992	2,002	264	35	74	
4	132,067	2,869	229	18	39	
5	133,636	5,454	211	13	21	
6	135,271	6,664	198	8	6	
1	138,226	7,891	190	-2	-2	
8.	139,445	10,781	192			

Figure 12: A 51% ppm increase occurred during 8 to 10 thousand year period leading up to the mega global warming cycle peak occurring 128,399 years before present.

	Mean Age of Air before present	Time from Initial Sample	CO2 PPM	CO2 Increase	Total CO2 Increase	Total Percent Increase Past 10,000 Years
1	Instrument readings	Present	385 ppm	23 ppm	100 ppm	49 percent
2	2,342	2,342	285 ppm	0 ppm	25	
3	3,833	3,833	268 ppm	35 ppm	8	0
4	6,220	6,220	262 ppm	18 ppm	2	
5	8,113	8,113	260 ppm	-2 ppm	-4	
6	10,123	10,123	262	-2 ppm	-2	
7	11,013	11,013	264			

Figure 13: A 49 percent natural increase of carbon dioxide from 262 ppm to 385 ppm occurred during a 6,000 to 10,000 year period leading up to the peak of the current natural 116,000 year temperature peak. Data derived from the Lake Vostok ice core samples from 6.220 to 100 years before present, instrument records from 1902 AD to 2008 AD.

And finally, during the present day natural mega global warming cycle as seen in Figure 13, carbon dioxide concentrations began much higher at 262 ppm 6,000 to 10,000 years before present, as compared to 190 to 200 ppm for the other cycles. Thus indicating the current cycle leading up to the crest began much warmer than the 3 other cycles, and this allowed the natural carbon dioxide feedback system to accelerate for a longer period of time, enabling carbon dioxide concentrations to reach near 400 ppm, and likely very similar to the warm cycle over 400,000 years ago.

The conclusion from a study of the 4 tables in Figures 10-13 indicate that all 4 mega 116,000 year global warming cycles during the past 333,000 years showed an increase of 44 to 51%, and this includes the current cycle at 49%. The only difference in the current cycle is that carbon dioxide levels and temperatures were naturally higher 10,000 years prior to the crest of the cycle, thus indicating a natural very warm cycle.

It is also concluded that the percentage increase in carbon dioxide ppm during the 10,000 years leading up to the crest of the current mega warming cycle, is within the mean values of the other 3 “natural” mega global warming-carbon dioxide cycles, and that the present day 385 ppm is not caused primarily by the industrial emissions of carbon dioxide, but rather by the natural cycles discussed herein.

By using this knowledge of past climates and the historical extent of ice cover, it can be hypothesized that if the atmospheric temperatures 425,000 years ago were as warm as today and that carbon dioxide is a following gas caused by a natural feedback response to warmer temperatures, and it is also likely that carbon dioxide concentrations were similar to present day readings. Therefore it is hypothesized that the present day carbon dioxide levels are within the natural envelope experienced during mega warming cycles occurring approximately every 425,000 to 460,000 years.

Although some may maintain that temperatures and the carbon dioxide ppm levels of the current cycle are higher than the other 3 natural mega cycles, remember that just 4 mega cycles prior to this current one, the depth of ice over lake Vostok in the Antarctic was nearly void, thus indicating a cyclical melting some 425,000 to 460,000 years ago, much like what we are seeing today.

The upcoming sections will discuss the 7 different natural global warming cycles which range from 450,000 years all the way down to 10 year periods, and demonstrate that every 4^{th}global warming master and sub cycles are the strongest and warmest, and show why temperatures and carbon dioxide have increased so dramatically since 1930, and are similar to the very warm mega cycle 425,000 to 460,000 years ago.

6. Overview of the Primary Forcing Mechanism (PFM) For Climate Change

The major influence of the PFM on the earth's climate is that it causes the ocean's dominating (located over ocean's) regional high-pressure systems to become displaced from their normal seasonal position for extended periods of time. The PFM is cyclical, as is our weather and climate, and fortunately, the PFM lunar cycles can be traced back through history, and also be forecast many years into the future.

It is common knowledge that as the earth goes through its annual and seasonal axis tilt (Figure 14) from the perpendicular to the plane of the ecliptic orbit (in respect to the earth's equator) from 23.45° north latitude (northern

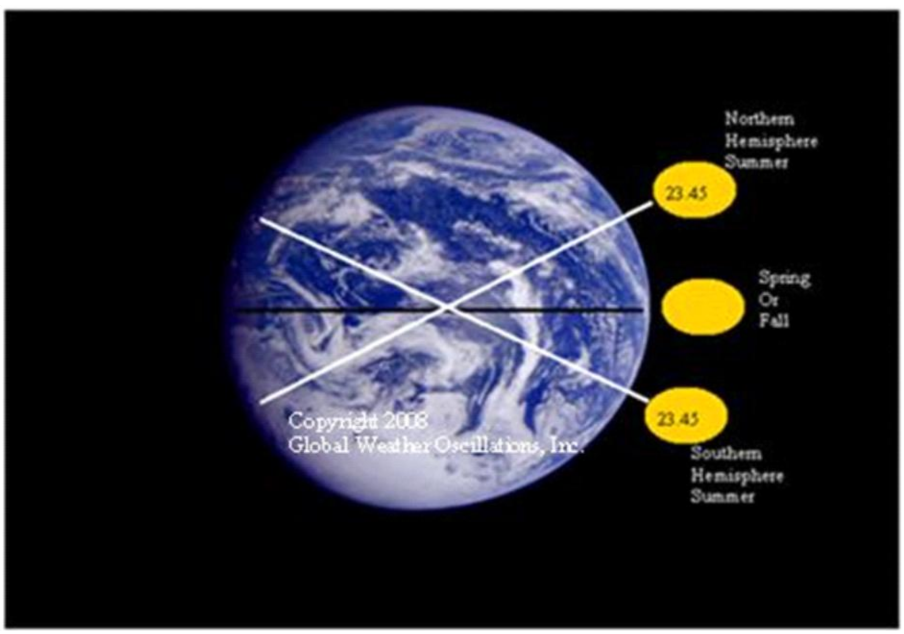

Figure 14: Annual tilt of the earth from 23.45 degrees north latitude to 23.45 degrees south latitude. It takes 365 days to complete this cycle, and to complete the earth's path around the sun.

hemisphere summer) to 23.45° south latitude (southern hemisphere's summer and northern hemisphere's winter), the sun's direct solar radiation (sunshine) received at any given latitude (spot) on earth, likewise changes.

It is also known that this causes a direct teleconnection between the sun's radiance (sunshine) received at all latitudes of the earth, with the earth's atmospheric temperatures resulting in the earth's four seasons: summer, fall, winter and spring.

Earth's annual axis oscillation causes recurring climate cycles within the climate. Of interest is the longer-term climate cycles lasting 9-years, 72-years, 115-years, 230-years, or even longer periods of 50,000 years or more.

Are they related to natural interactions between the earth's oceans and atmosphere? Or are they related to changes in the yearly axis oscillation of the earth, or, perhaps to another cyclical event such as gravitational cycles of the moon – or some combination?

It is important to note that the elliptical path of the moon around the earth is similar to the elliptical path of the earth around the sun, but with some differences. It takes approximately 365 days for the earth to complete its annual orbit around the sun, and it only takes approximately 27.5 days for the moon to complete its orbit around the earth (Figure 15).

Both elliptical paths of the moon's and earth's orbits around their respective bodies also differ in their proximities to their orbital bodies. For instance, the earth always makes its closet approach to the sun in January; this is called the perigee of the orbit. In contrast to this, the furthest approach is called the apogee and is normally achieved in June or July.

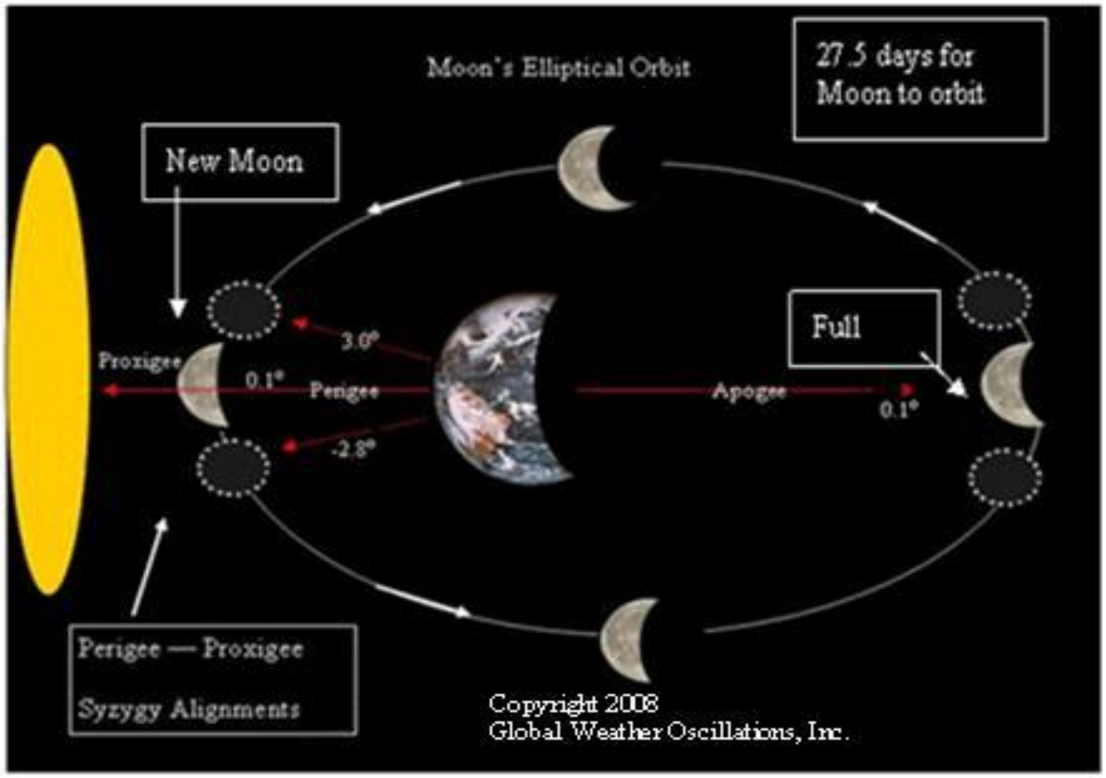

Figure 15: Some what typical 27.5 day orbit of the moon around the earth. However, great variations occur in this elliptical orbital path each month, and each year. Left side of the picture shows the earth moon and sun in collinear alignment of less than 3 degrees, with the new moon at perigee and the earth-sun at its closest approach (proxigee). This alignment is called a Perigee-Proxigee-Syzygy with gravitational tide-raising forces **about 46 percent above mean gravitational values.**

The moon's orbit is constantly changing, much more so than the earth's. Although the moon makes a close approach (perigee) to earth once a month, its closet approach occurs every 6 months, and this is normally near the time of the solstices and equinoxes in December, March, June and September. These cycles also change from year to year, thus setting up 6-month cycles, approximate 4-year cycles, and 18.5-year cycles, among others.

The moon's furthest distance from earth is the apogee. The difference between an apogee and perigee event can be as much as 51,000 km. A typical elliptical orbit of the moon is shown in figure 15. The right side of the figure depicts a full moon phase at its greatest distance from earth (apogee), and also in syzygy alignment with the earth and sun (a collinear alignment of 3 degrees or less). A syzygy alignment such as this increases associated ocean and atmospheric tide-raising gravitational forces on earth by about 20 percent above mean values.

As the moon continues its orbital path, it reaches new moon status approximately 13.5 days later (left side of figure). The new moon depicted in Figure 15 is at perigee (closest approach to earth), and also at proxigee (closest approach to the sun). If this new moon, earth and sun are all aligned within 3 degrees, it is called a Proxigee-Perigee-Syzygy Alignment.

It was noted by Woods (1986) that ocean tide-raising gravitational forces increase by about 20 percent when a syzygy occurs, an additional 20 percent when the syzygy is also in perigee, and an additional 6 percent if the moon and earth are at proxigee to the sun. Therefore, in the new moon depiction on the left side of the figure, there is a total increase in gravitational tide-raising force of 46 percent greater than a mean lunar phase.

The moon's distance from earth may be as close as 356,375 km or as far away as 406,720 km in any given month (approximate 12% difference), and this is one reason why there is such a large variation in the gravitational force on the earth by the moon.

Aside from the time-line of a month versus a year for complete elliptical orbit of the moon, there is also a small difference in the apparent latitudinal elevation in the sky in respect to the earth's equator (called the declination of the moon. The sun's latitudinal declinations reach a maximum of 23.45° N around June 21 of each year, and 23.45° S around December 21 of each year (see Figures 15 and 16).

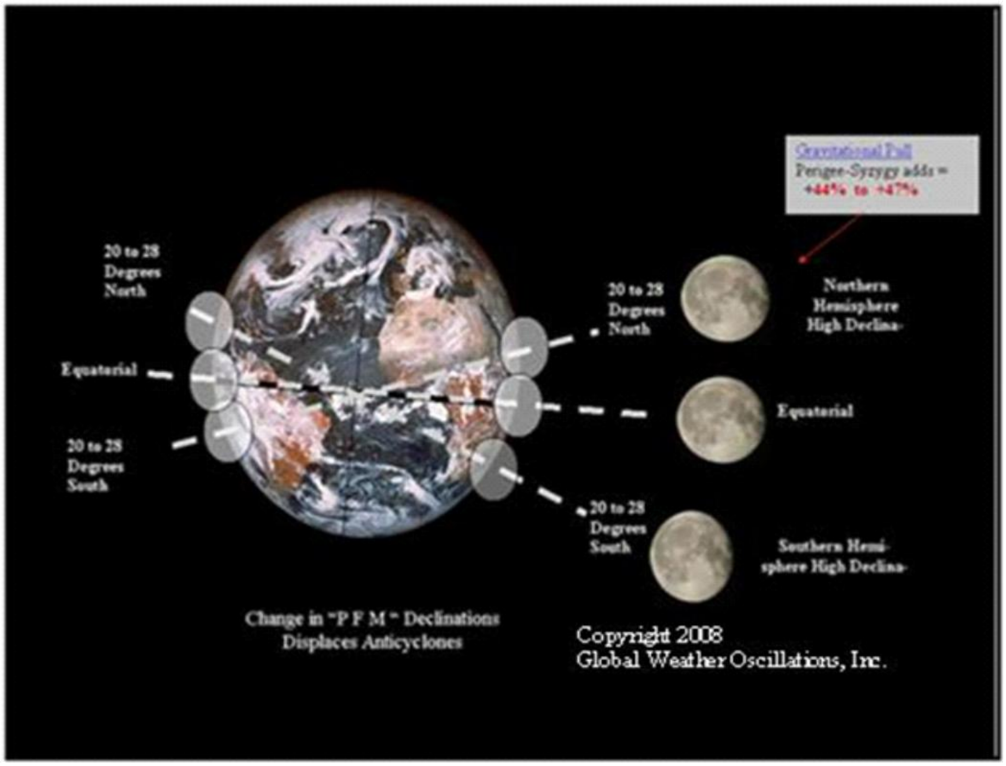

Figure 16: Depiction of the moon's declination syzygy cycle at 20 to 28 degrees north latitude (upper right), then in the southern hemisphere high declination phase 20-28 degrees below the equator approximately 4-years later (lower right). As the earth rotates on its 24-hour cycle, gravitational force of the moon causes the oceans to bulge along the lunar gravitational envelope, and a dome of water to form on both sides of the earth.

The moon on the other hand reaches its highest declinations every 4 years instead of annually. Unlike the sun, the highest declinations of the moon vary from as little as 18 degrees to as much as 28 degrees. The highest of these declinations cyclically occur every 18.5 years, and the lower value 9 years before, or 9 years after this cycle.

These cyclical orbital patterns of the earth and moon in conjunction with the sun sets up very specific and powerful long-term recurring cycles that over time cause displacement of regional semi-permanent anticyclones (high pressure centers), and changes in regional and global climate. As mentioned earlier and will be discussed and demonstrated in upcoming sections, some of the most important and powerful Earth-Moon-Sun Syzygy alignments are the approximate 4-year cycle, 9-year, 18.5-year, 72-year, 231-year, 231-year, 925-year, 5000-year, 116,000-year and 460,000-year cycles, all of which are Primary Forcing Mechanisms (PFM) of the climate.

Sections 7 and 10 provide PFM graphs prepared solely by Mr. Dilley of GWO, and an in depth analysis of these lunar cycles to global warming and cooling cycles from 460,000 years before present, to 100 or more years into the future.

7. The Primary Forcing Mechanism (PFM) Causing Global Warming and Cooling Cycles – Graphs and Correlations

Meteorologists and climatologists have theorized for nearly 100 years that certain gravitational cycles of the moon strongly affect certain weather and climate cycles. However, research in this little known field has been met with some criticism, skepticism and even disbelief by some in the community that do not understand the moon's gravitation cycles. Because of this, most of the recent research concerning global warming and other climate changes have been centered on mainstream thinking, with very slow progress.

This section will take the results of the mainstream research, incorporate some earlier, largely overlooked non mainstream research by Bryson (1948), include new research, tie them together, and put forth a new and very credible hypothesis for the major causes related to Global Warming and global cooling cycles.

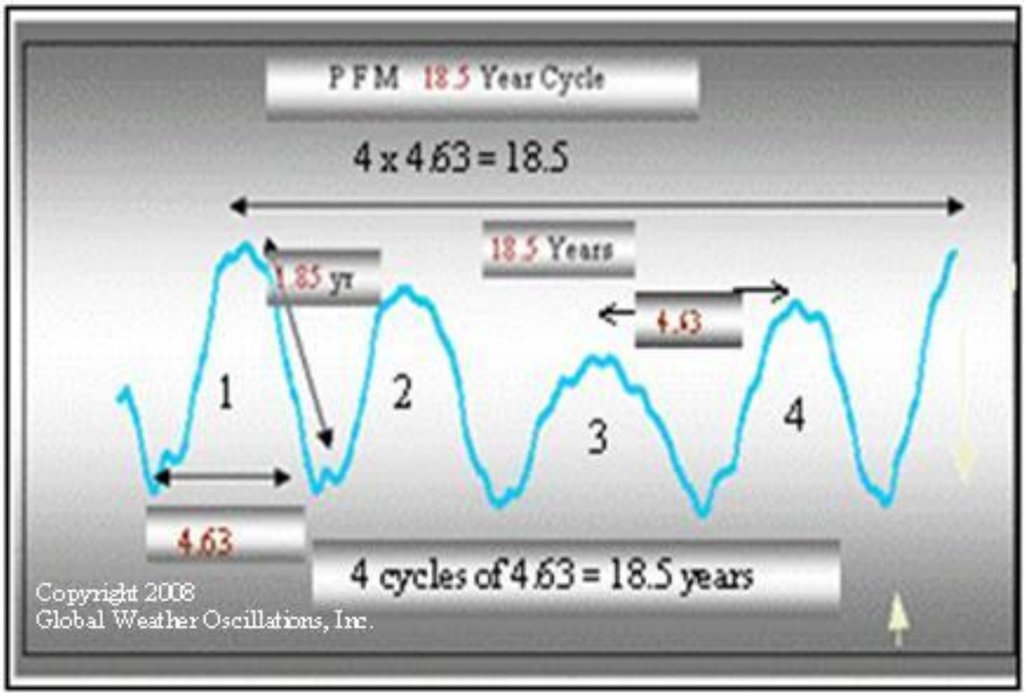

Figure 17: It takes approximately 4.6 years to reach the next peak syzygy lunar declination. It also shows that the highest declinations occur every 5th cycle, thus acting like goalposts with 3 smaller cycles sandwiched between the 2 large 18.5 year cycles.

Let's look at specific PFM cycles, and then determine what happens to the climate as certain recurring cycles of the moon's declination cycles exerts enough gravitational force to cause cyclical higher than mean tides in the earth's oceans and atmosphere.

As seen in Figure 17, the moon reaches strong syzygy declinations either above or below the equator approximately every 4.5 years. However, the maximum or minimum declinations reach 18 degrees every 18.5 years, and as high as 28 degrees with respect to the equator 9-years later as shown in Figures 16 and 17.

Because of the monthly and yearly oscillating cycles of the moon's elliptical orbit, the position and timing of the perigees, apogees and the apparent declinations (elevation in the sky in respect to the earth's equator) are always changing.

Although perigee-syzygys occur every month during the time of full or new moon phase, the most important strong perigee-syzygy earth-moon-sun alignments occur on consecutive months, approximately every 6 months. This provides a total of 4 per year, and about 74 over the course of an entire 18.5-year cycle. Because these syzygys declinations produce the strongest gravitational forces and changes on the earth and oceans, only the declination cycles with strong gravitation cycles will be noted and examined in this research.

To correlate the proper PFM data and cycles, daily cycles of the moon's distance from earth, height in the sky in relation to the earth's equator, monthly perigees and other variables were computed and analyzed for this research. Literally millions of pieces of data were needed for the computations for the period 950 AD to 2125 AD.

The actual graphs used for comparisons are shown later within this section, and are correlated with global warming cycles from present day back to 425,000 to 460,000 years before the present.

The top graph in Figure 18 shows an actual plot of the 18.5-year Master PFM cycle and its 4 sub-cycles. The other 2 graphs, the 925-year Master Cycle graph and the 460,000-year Master Cycle graph are extrapolated from the 18.5 Master graphs.

However, an actual 925-year plot is shown later and thus verifies the correctness of the extrapolated graphs. Note in figure 18 the strikingly similar harmonics of the 3 Master Cycles and their sub cycles, from 4-years out to 460,000 years before the present time.

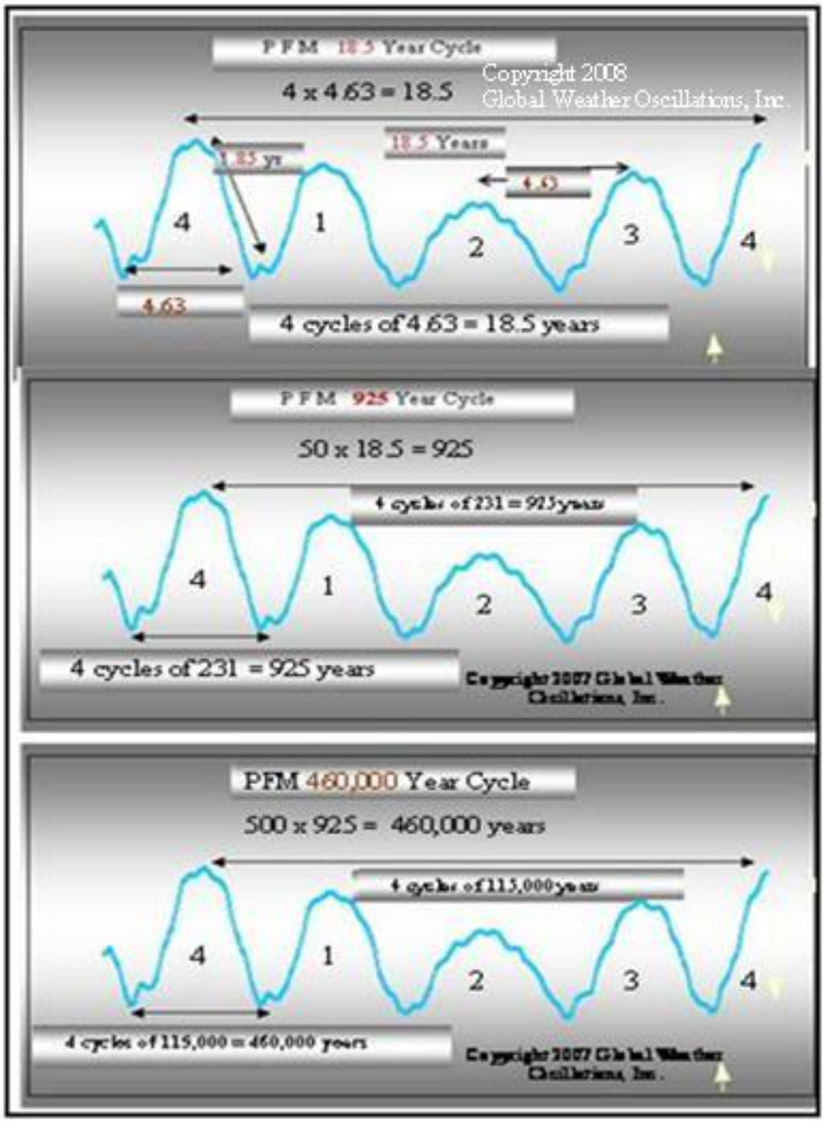

Figure 18: This graph shows 3 Master global warming cycles, the 18.5-year Master Cycle with 4.6 year sub-cycles the 925-year Master Cycle and 231-year sub-cycles, and the approximate 460,000 year Master Cycle and its 116,000-year sub-cycles. Notice the similar harmonics in the 18.5-year, 925-year approximate 460,000 year Master Cycles

After compiling nearly a half million days of data for the calculated time period from 1 day out 1,170-years, the data was screened to provide monthly occurrences, then further screened for special syzygy occurrences each year, with the final results leaving about 5,600 pieces of data for the graphs. Two graphs were then plotted with the remaining data, a 20-year graph and a second graph for just over a 1 thousand year period.

After plotting the 2 graphs, it was found that the sinusoidal harmonic curve of both the 18.5-year and 925-year cycle graph, and their 4 sub-cycles were strikingly similar. Noting this, it was then possible to extrapolate out further to 460,000 years, thus providing 3 graphs with 3 Master Cycles and their associated 4 sub-cycles. As noted, these 3 Master Cycles and their associated 4 sub-cycles all have very similar sinusoidal sign curves and harmonics, a very important and common trait of lunar cycles.

The first cycle at the top of Figure 18 is the Master 18.5 year lunar declination cycle, and its 4 sub-cycles of 4.63-year intervals. The second graph shows a 925-year Master Cycle and its associated 4 sub-cycles of approximately 231-years each. The bottom graph shows the approximate 460,000-year Master Cycle and its associated 4 sub-cycles of approximately 116,000 years each.

Looking again at Figure 18, it is very important to note the similar harmonics over time. All 3 graphs show 2 very high PFM cycles, 1 on the far left, the other on the far right, and much like the goalposts on a football field. These goalposts have 3 smaller cycles in the middle, and it will be shown later how all of these cycles strongly effect global warming cycles, and that the 4th cycle is always the warmest (the goalpost cycle), and the coolest global warming cycles are in the middle of the goalpost.

To further explain and depict the harmonics of the cycles, a few simple calculations of the sinusoidal curve and cycles are shown below. (Actual precisely calculated cycles of the moon were plotted on the upcoming charts in this section for year 1 out to 969 AD. These calculations found the Master cycles of 18.5-years and 925-years, and their 4 sub cycles).

A lunar year= 0.9 earth years

5 x **0.9**= one **4.63** year cycle (4 cycles x 4.63 = **18.5 year master cycle**) top graph
50 x **4.63** = one **231** year cycle (4 cycles x 231 =**925 year master cycle**) middle graph
500 x **231** = one **116,000** year cycle (and 4 cycles x 116k = **460k year master cycle**) bottom graph

Knowing and understanding the PFM cycles, one can correlate them with the earth's past, present, and future temperature cycles. The first step is the actual 18.5-year PFM Master Cycle plot and its associated 4.63-year cycles.

Figure 19 shows a plot of the sea surface temperatures (blue plot line) for the tropical South Pacific Ocean during the period 1966 through 1986, and the PFM cycles (red line with yellow dots). This particular plot shows 2 large PFM cycles on either side (goalposts depicted in red) and 3 smaller 4.63-year cycles between them. As noted earlier in Figure 17, it takes 4 PFM cycles (18.5-years)

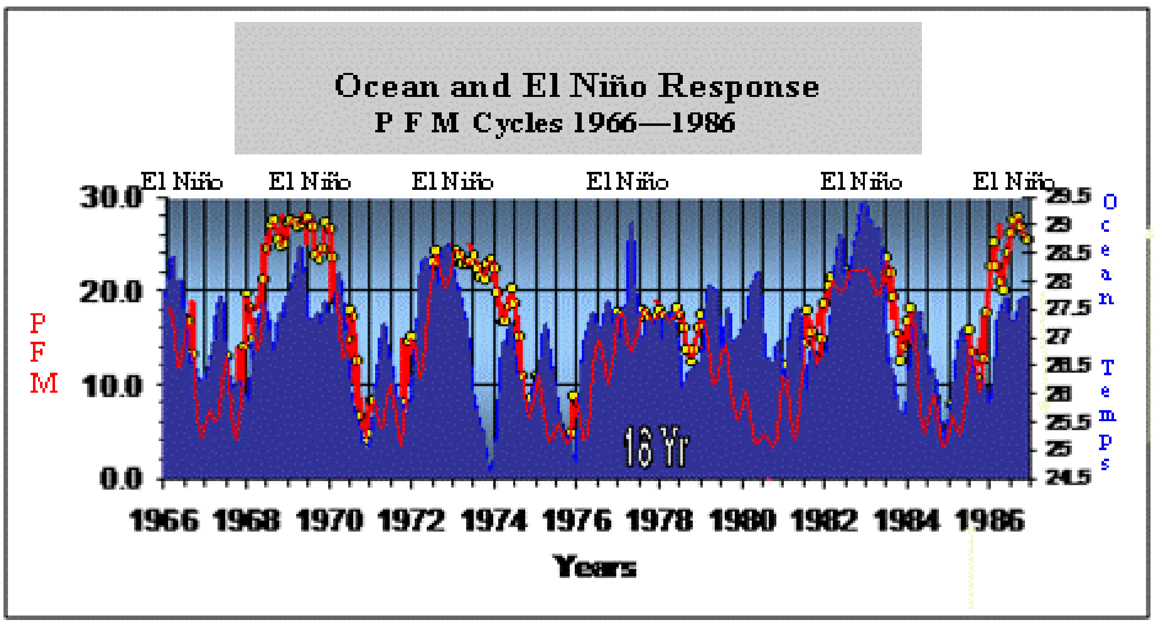

Figure 19: PFM cycles (red line with yellow dots) and the tropical South Pacific Ocean sea surface temperatures (blue) from 1966 through 1986. Notice how the ocean temperatures responded to the PFM cycles, and the occurrence of an El Niño on each cycle.

to go from the highest PFM cycle (on the left) to the highest PFM cycle (on the right). It takes 4.63 (approximately) to go from one PFM cycle to the next.

Again referring back to Figure 19, it is readily seen that the sea surface temperatures respond quickly to each PFM cycle, with each PFM and sea surface cycle corresponding to an El Niño occurrence (each peak in ocean temperatures). Thus, these cycles have a dramatic influence on the world's climate oscillations by forming an El Niño, which is related to climate trends.

Referring again to the approximate 4.5 year PFM cycle, Figure 20 shows the PFM cycle (red dots) and the northern New England (northeastern United States) winter temperatures (black line) for the period 1978 through 1996. The warmest winters are highlighted in red and the coolest winters circled in ice blue.

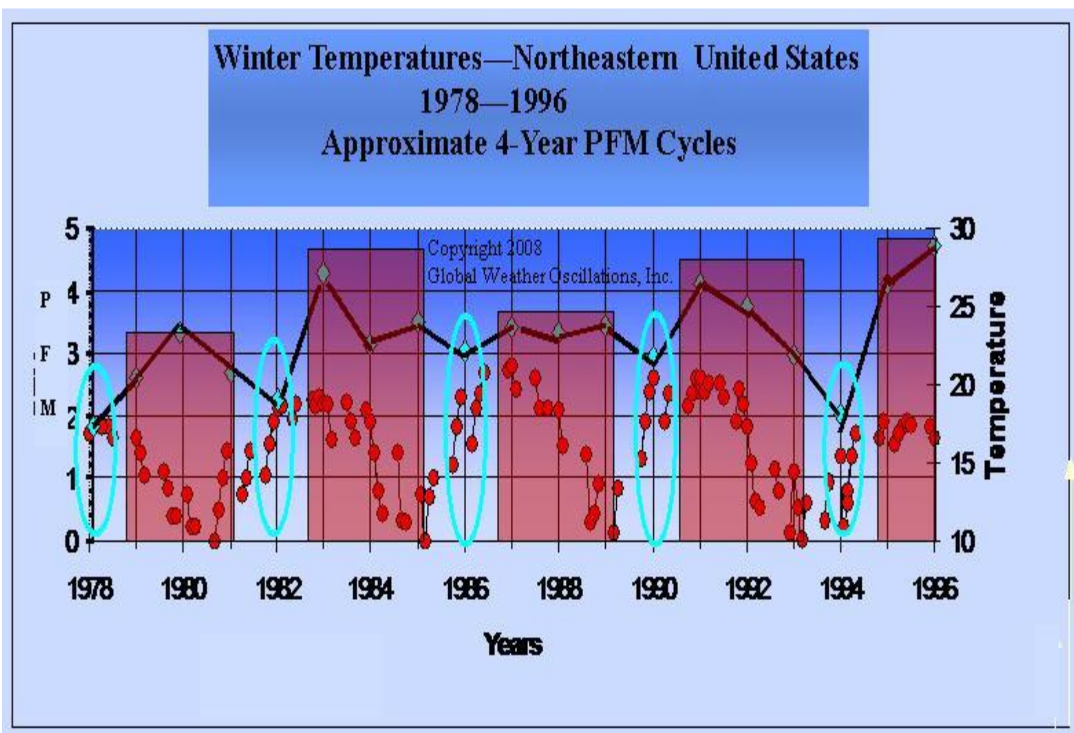

Figure 20: The approximate 4.5 year PFM cycle (red dotted curve) and Northeast U.S. winter temperatures (black line). The red highlighted areas are warmer temperatures. Notice all colder winters (circled in ice blue) occur as the PFM cycle increases in latitude.

Notice that all the coolest winters occurred as the PFM cycles come off the trough and rise in latitude.

Taking the PFM cycle out beyond the 18.5-year Master Cycle, the graph in Figure 21shows the actual smoothed PFM data plotted for the period 1100 AD to 2125 AD (upper plot), and the reconstructed temperatures plotted for the period 1000 AD through 2007 as the bottom plot line.

The reconstructed northern hemisphere temperatures show 5 global warming episodes highlighted in red. It will be shown later in this research that

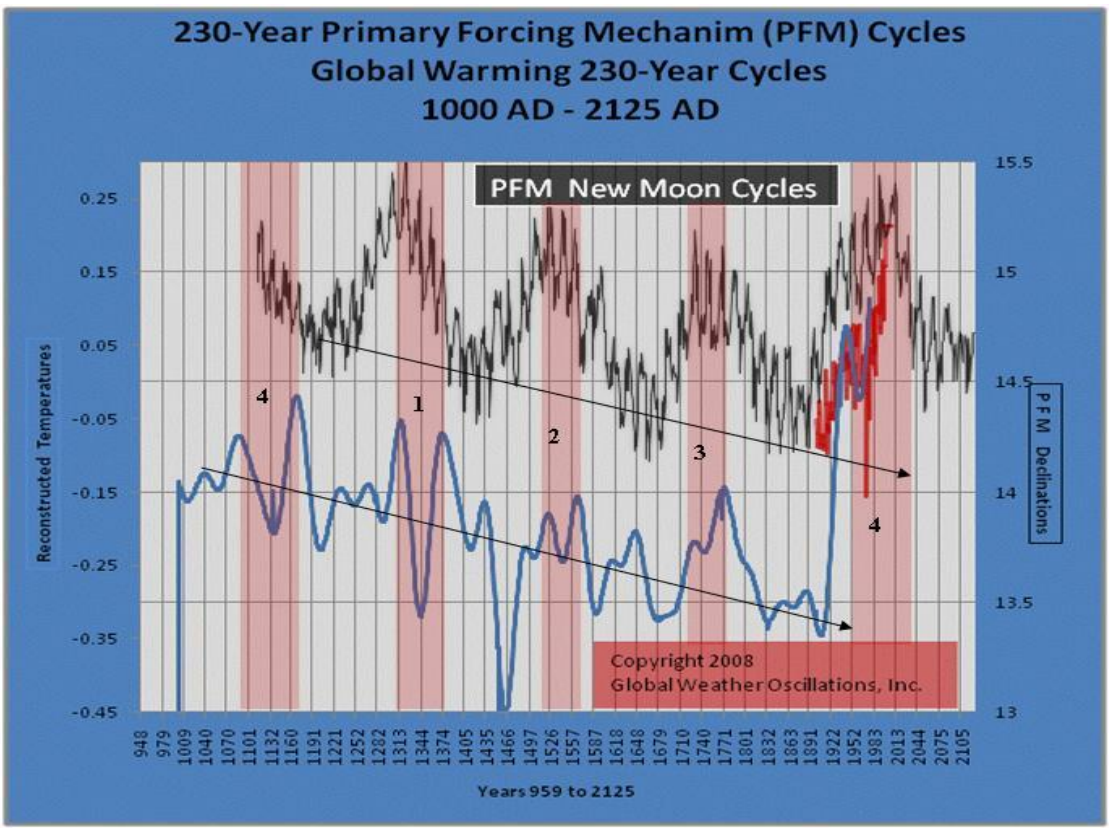

Figure 21: Plot of the PFM (upper plot curve) and the reconstructed Mann et al northern hemisphere temperatures (lower plot line) for the time period 1000 AD to 2008. Notice how the temperatures decreased (lower plot) over a 1000-year period and the PFM also decreased during the same period. Cycles of global warming are highlighted in red.

long-term global warming cycles all have a master cycle made up of 5 sub cycles, with the warmest cycles at the beginning and end of the master cycle, thus acting as goalposts with 3 cooler cycles sandwiched between. This particular graph shows a 925-year master cycle with the warmest 2 cycles labeled as number 4 on the left, and number 4 on the right side of the graph. The 3 sub cycles between these 2 warm goalpost cycles are libeled 1 through 3.

The northern hemisphere temperatures were reconstructed by Mann et al (1999), and are plotted for the time period 1000AD to 1980. Instrument recorded temperatures are plotted in red for the period 1902 to 1998, and data from NASA added for1999 to 2008, also in red. Each of the 5 global warming episodes show twin temperature peaks, with approximately 70 years separating each peak (twin peaks important to note here for reference later in this manuscript).

Because the PFM data is smoothed over a long period of time to acquire the approximate 231-year PFM sub-cycles, the actual smoothing plot begins at 1100 AD. It is also important to note that the 18.5-year PFM plot shown earlier, included combined data from both the new and full moon cycles and showed a large goalpost declination cycle on each end of the plot, and 3 smaller cycles sandwiched between (Figures 17 and 18).

By plotting the New Moon cycle only, one goalpost shows up on the right hand side of the plot, and the other goalpost is just off the left hand side of the plot. In between the goalposts are 4 diminishing PFM cycles until approximately the year 1900 (as noted by the arrow), then an increase after 1900.

Of great interest is that the reconstructed temperatures show the same pattern, diminishing temperatures from about 1150 to 1900, and beginning around 1900 both the PFM cycle and the northern hemisphere temperatures increased to the highest levels in 920 -years. This is a significant finding that indicates long-term temperature responses to the PFM cycles.

A more thorough analysis of the New Moon PFM cycle is shown in Figure 22 below. The red dots on the upper portion of the plot correlate to the point on the PFM cycle that corresponds with the first temperature peak of each global warming episode. Notice the common position on each PFM cycle corresponding with every initial global warming peak. Again looking at the upper PFM plot, the ice blue dots signal the ending of the second temperature peak for that particular global warming episode.

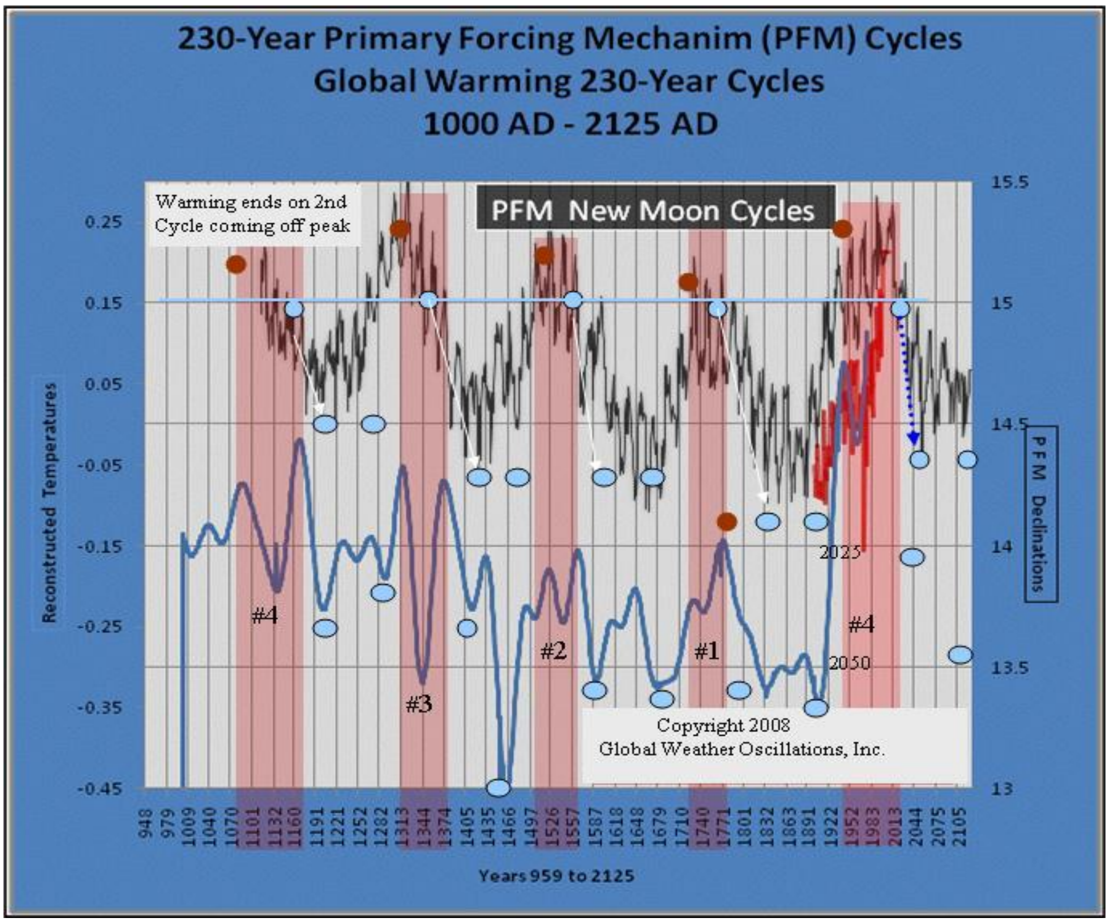

Figure 22: This graph is an analysis of Figure 21 shown earlier. The red dots note the first temperature peak on each of the 5 global warming episodes, and the blue dots on the upper plot note the beginning of global cooling. Blue dots in the middle and lower portion of the plot notes the cold temperature troughs of each cycle. Notice how all the dots correspond to similar positions of the PFM.

It was noted earlier that each global warming episode is associated with 2 temperature peaks separated by about 70-years. The ice blue dot represents the point on the PFM cycle that corresponds to the bottom point of the rapid cooling period coming off the second global warming peak.

Analyses of the graphical points (dots) indicates that global warming ceases near the second PFM spike following the peak of the PFM, and at the point which the PFM diminishes to a point at or below the light blue PFM threshold line (approximately 15.0 degrees of latitude).

Further analyses of the New Moon PFM and temperature graph in Figure 22, shows the coldest global cooling temperatures occurring approximately 25-30 years later (as noted by the steep trough in the temperature plot), and the second coldest temperature trough occurring just before the PFM begins rising for the next global warming episode. This exact scenario occurred on all 4 global cooling cycles since 1000 AD, and this provides a sound hypothesis that this will occur once again following the ending of the current global warming cycle.

Hence, this particular New Moon PFM graph indicates that the first phase of global cooling will begin in 2008-2014 , and the second phase major cooling cycle by 2020-25. This will be followed by very rapid major cooling, with the coldest point of the cooling trough being reached in 2050.

Taking a look at the analyzed Full Moon PFM cycle and temperatures during the past 1,000 years in Figure 23, a very different PFM cycle is seen. In this graph, the red dots note when warming began prior to the first warming peak of that particular global warming episode. The ice blue dots denote the point at which global warming starts to end. This is right after the second temperature peak of the global warming episode and signals the beginning of global cooling.

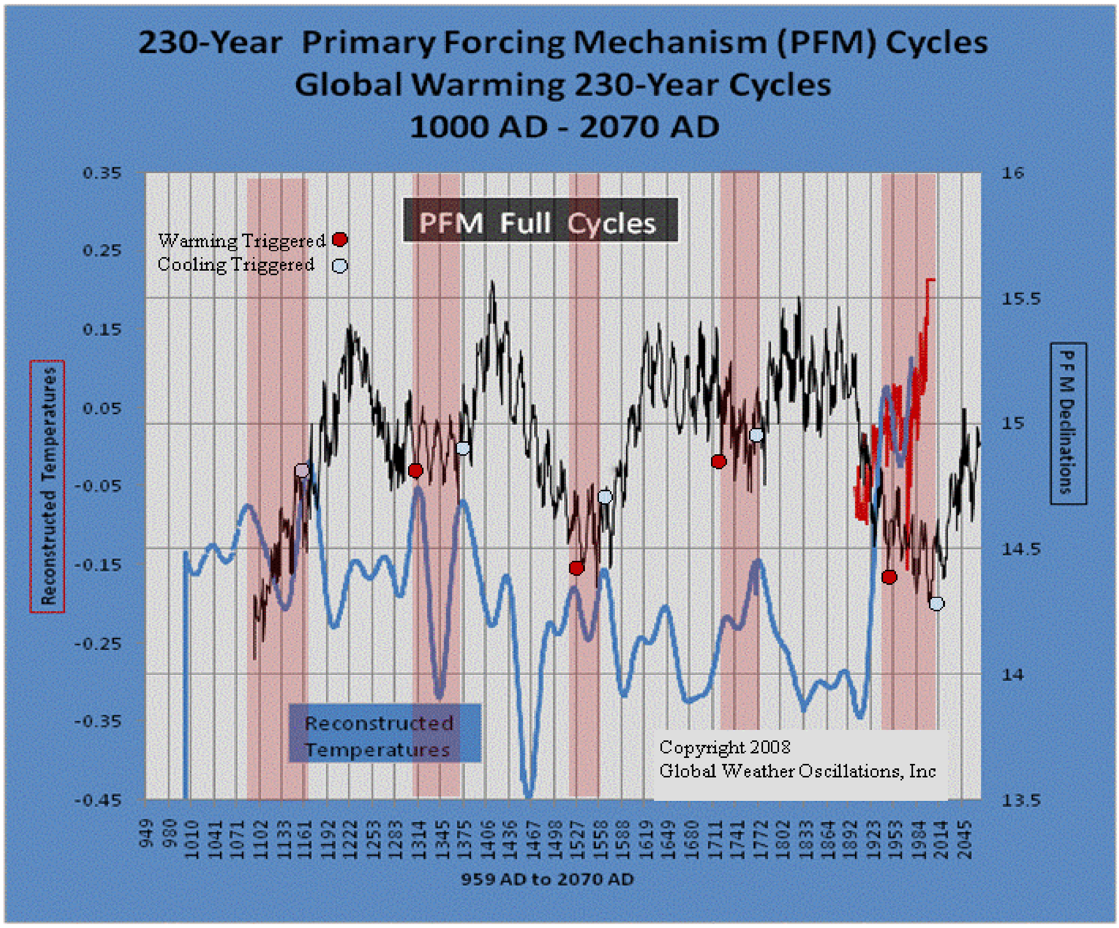

Figure 23: Plot of the PFM Full Moon cycle (upper plot curve) for the period 1100 AD to 2125 AD, and the reconstructed temperature plot for the period 1000 AD through 2007. Notice how the red dots on the upper plot correspond with the beginning of the first twin temperature peak of each global warming cycle on the lower plot, and the blue dot corresponds to the beginning of global cooling.

This graph clearly shows that global warming episodes occur during the trough of the PFM cycle, and global cooling during the peak of the Full Moon PFM cycle. The blue dot indicates that global cooling begins as the Full Moon PFM begins to come off the trough, thus indicating that the initial phase of global cooling will begin cooling no later than 2008-2014 with rapid major global cooling from 2020 through 2050 AD.

Although both the full moon and new moon graphs are very consistent concerning the beginning and ending of global warming, and global cooling, Figure 24 shows some significant findings by combining the new moon and full moon PFM graphs. The reconstructed temperatures are plotted along the bottom portion of the graph, the new and full moon cycles directly above the temperature plot. The blue dots indicate the declination point where the full moon declination cycle decreases and intersects the rising declinations of the new moon. The red dot notes the intersection of the falling new moon declination cycle and the rising full moon cycle.

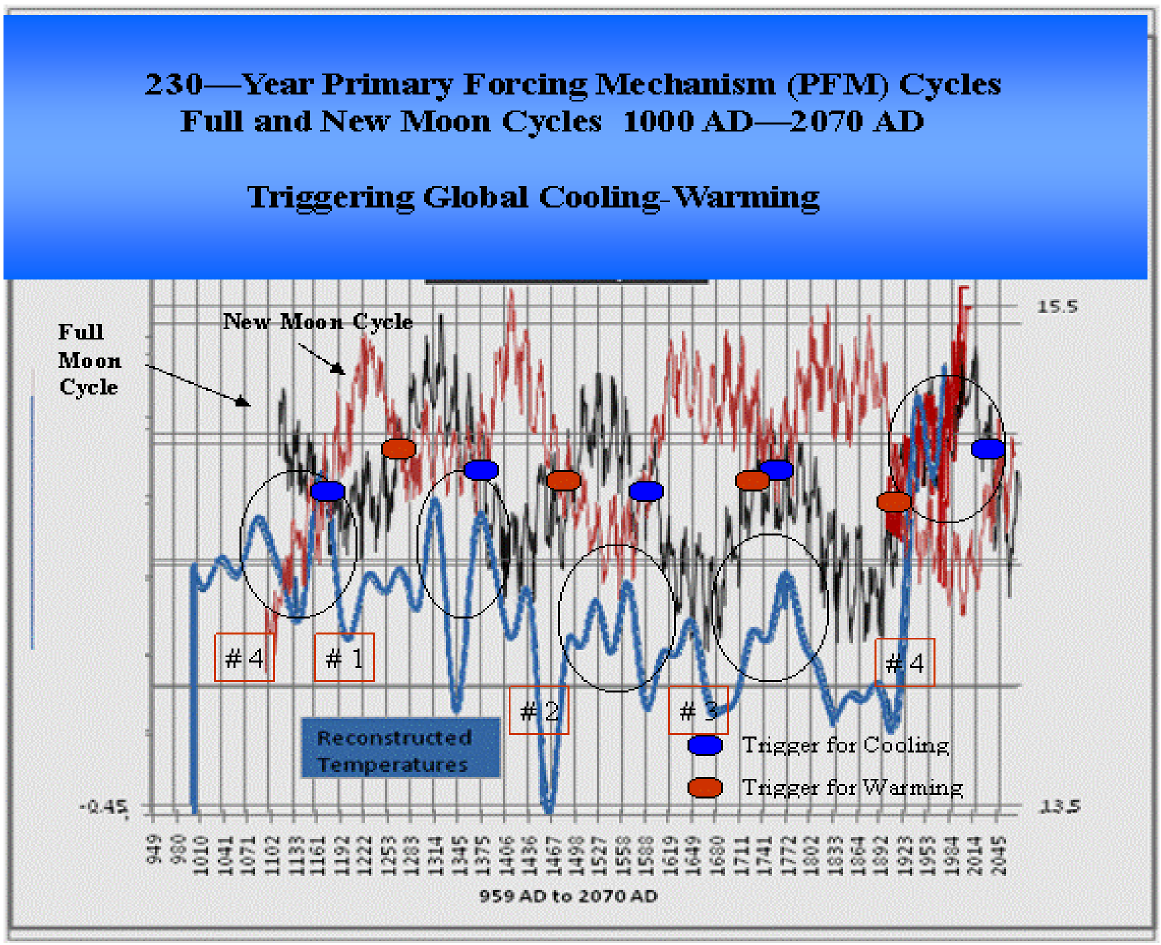

Figure 24: Plot of both the full moon and new moon cycles correlated with reconstructed temperatures lower portion of this graph, and the new moon and full moon cycles upper portion. The blue dots signal the intersection of the two PFM cycles and the ending of global warming. The red dots indicate the intersection of new moon with the full moon cycle, and the beginning of global cooling.

It is clearly shown in this graph that global warming (red dot) begins at the intersection of the lowering new moon and rising full moon approximate 231-year declination cycles, and that global cooling begins as the lowering full moon cycle intersects the rising new moon cycles (blue dots).

From this graph it is clearly seen that global warming began as anticipated from the technical rationale discussed with the intersection of the PFM cycles during the period 1900 to 1930, and that the initial phase of global cooling is expected to begin with the intersection of the full moon and new moon approximate 231-year declination cycle beginning in 2008-2014, and the full phase of global cooling around 2020 to 2024 as the intersections pass.

Inspection of this graph also indicates that global warming occurs during the period in which the full moon stabilizes after its descent, then global warming ends once the full moon cycle de-stabilizes and begins moving to higher declinations, and this also occurs around the year 2008-2014 AD.

Looking even further back in time, Figure 25 shows the approximate 925-year reconstructed temperature cycles from the present time (right side of the graph) out to the ice age 10,000 years ago (on the left side). Notice the approximate 925-year global cooling temperature cycles plotted in blue, and the warm global warming periods in red.

Overlaid on this graph are the extrapolated approximate 925-year PFM cycles. Note how strikingly the sinusoidal curve lines up with the cool and warm periods, and with the goalpost hypothesis of warmest cycles on either end matching up with the goalposts of the PFM. The extrapolation becomes dampened out as the time series approaches the ice age.

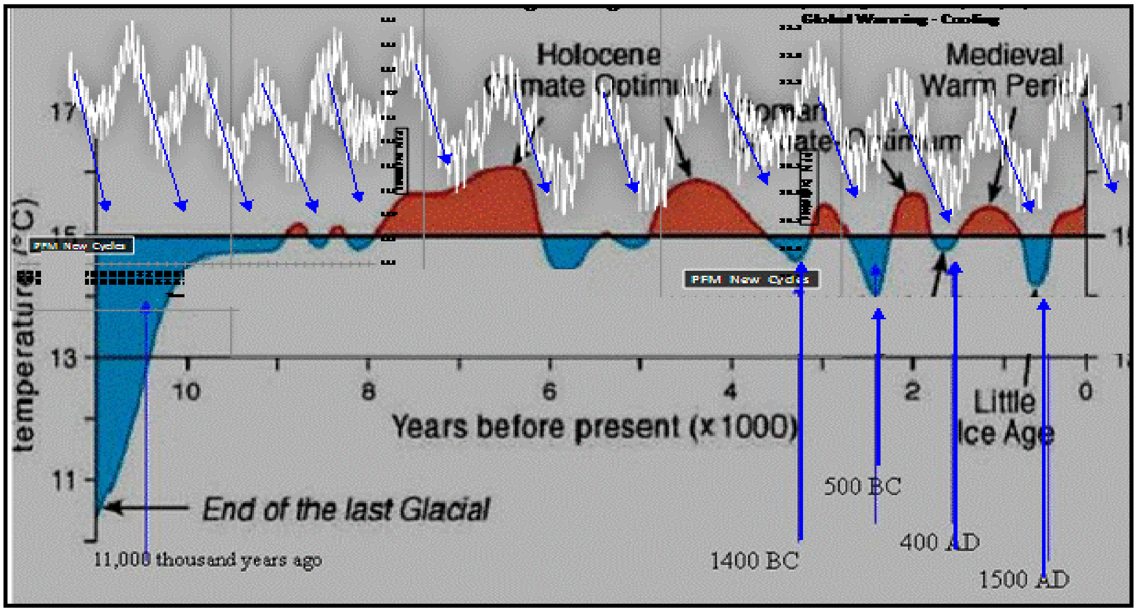

Figure 25: Reconstructed approximate 931-year temperatures cycles are shown in red, and the extrapolated 931-year PFM cycles in white just above the temperature cycles. Notice the similar harmonics of the PFM in relation to the temperature cycles during the past 9 thousand years (then absorbed into the glacial period. Reconstructed temperature graphs courtesy Archabold 2007 from Dansgaard et al 1969 and Schonweise 1995.

Of great significance and discussed in earlier graphs, each PFM Master Cycle is made up of 5 sub-cycles, with 2 Master goalpost high cycles on either side, and 3 smaller cycles in between (Figures 17 through 19 and 22). As seen in Figure 25, the approximate 925-year Master PFM cycle now becomes a sub-cycle of the longer-term approximate 4,000 year Master Cycle. This cycle is comprised of the five 231-year global warming sub-cycles. The warmest global warming cycles are at the goalposts approximately 4,000 years ago, and present day. These are the 2 warm goalposts sandwiching 3 cooler 925-year cycles.

Again referring to Figure 25 and its 925-year warm and cool cycles, note the 925-year global cooling periods are centered near 1500 AD (called the little ice age), 400 AD, 500 BC and 1400 BC. On either side of the 3 cool periods are the two warm goalposts centered near 4,000-years before the present time, and near present time (with the 3 smaller warm cycles between them).

Knowing the harmonics are strikingly similar from the 18.5-year graph out to the 925-year graph and 10,000-year graph, Figure 26 shows the 116,000 PFM cycles correlated with the 425,000 year Antarctica ice core temperature and carbon dioxide cycles (shown and discussed in Figures 3, 4, 8 and 9).

Note the approximate 460,000 year extrapolated Master PFM cycle and its approximate 116,000 sub-cycles (plotted in white), and how this sinusoidal curve is extremely similar to the cycles of temperatures and carbon dioxide over the Antarctic.

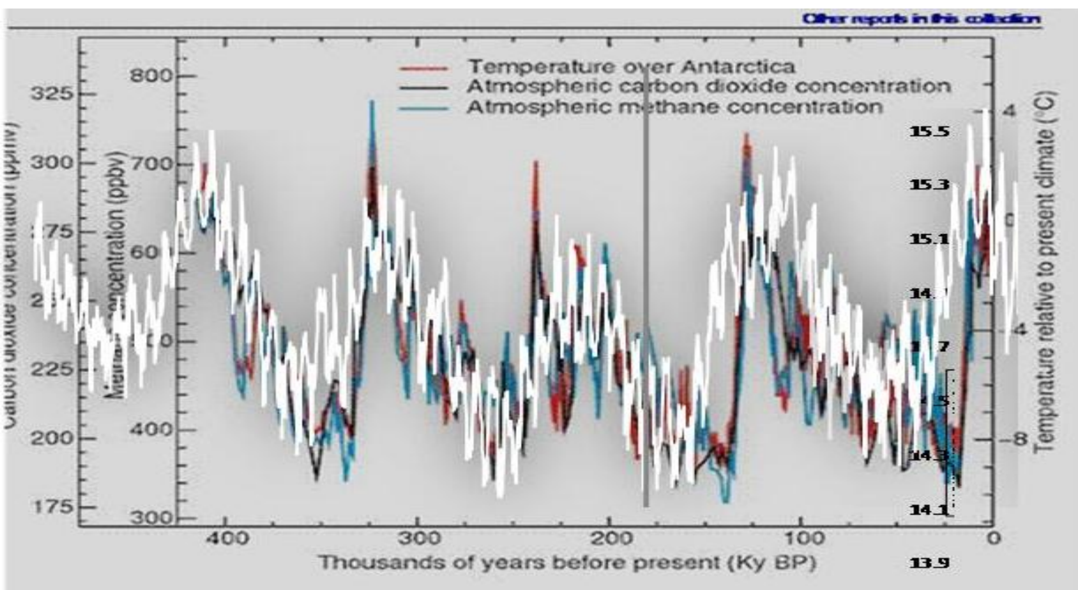

Figure 2.22: Variations of temperature, methane, and atmospheric carbon dioxide concentrations derived from air trapped within ice cores from Antarctica (adapted from Sowers and Bender, 1995; Blunier et al., 1997; Fischer et al., 1999; Petit et al., 1999).25 years.

Figure 26: Approximate 116,000 year cycles of temperature and carbon dioxide over the Antarctic as derived from ice core samples. Notice how the carbon dioxide shadows the temperature peaks and troughs during the 425,000 year period, and how the extrapolated 116,000 PFM sinusoidal sub-cycle (white lines) likewise follows the same peaks and troughs.

8. Findings and Summary

From the information noted in this research, it is clear that the moon's long-term declination cycles have a strong influence on the earth's oceans and atmosphere.

It is important to realize that the ocean is a very great expanse of liquid, and the gravitational action of the moon and sun is so strong that it causes the oceans to bulge along the lunar gravitational envelope depicted in Figure 27 on the next page. The maximum peak of the tidal dome is produced in the vicinity of the sub-lunar point with an almost identical tidal dome on the opposite side of the earth.

As the earth makes a full revolution on a daily basis, the dome intensifies under the sub-lunar point, and then relaxes after the sub-lunar point passes. This is what causes the high and low tides in the oceans twice daily, and tides within the atmosphere of the earth on a daily and monthly scale. This acts much like a giant plunger pulling and releasing, thus causing a dome and a slosh to occur in the oceans.

The magnitude of the dome (without weather related winds) is directly determined by the magnitude of the cyclical gravitational forces displayed on the oceans, and as shown within this research, these tide-forcing gravitational cycles have a direct teleconnection to the lunar declination cycles. It was also noted that these gravitational forces have a similar effect on the atmosphere, with daily and yearly atmospheric tides directly connected to the gravitational declination cycle of the moon.

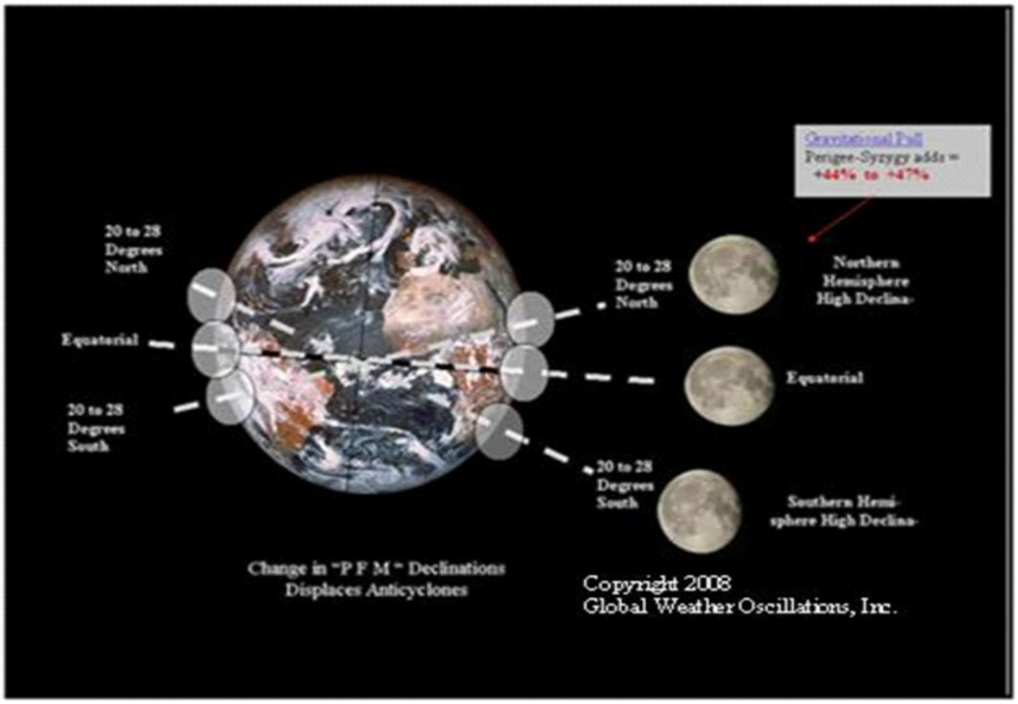

Figure 27: A depiction of the moon's gravitational envelope

It was shown earlier in this section that the very important subtropical high pressure belt circling the earth is located near 30 degrees north latitude, and near 30 degrees south latitude. It was also shown that the gravitational declination cycles effecting the subtropical belt varies between the equator to 28 degrees above the equator, with these cycles causing gravitational north and south tugging on the earth's atmosphere and oceans. It was demonstrated in Section 4 that these PFM cycles cause short-term and long-term latitudinal displacements in these regional oceanic anticyclones (high pressure centers), and thus the primary cause for global warming and cooling cycles.

It was noted in Section 5 that the current widely accepted hypotheses that man-made fossil fuel burning is the major cause of global warming is incorrect. It was shown that atmospheric temperatures and industrial carbon dioxide emission levels rose and fell at differing times from 1900 to 2008, with a 40-year period in which temperatures actually fell or remained constant as industrial emissions rose. Meanwhile, the overall levels of atmospheric carbon dioxide rose at a steadier pace from the onset of global warming right up to the year 2008. This steady rise conforms to past natural global warming cycles, and demonstrates that temperatures rise over Antarctica first, followed by a like increase in carbon dioxide.

It is important to understand that temperatures rise first in these natural cycles, and carbon dioxide is a following gas responding to this natural temperature cycle. It was noted earlier that global warming cycles follow the PFM cyclical harmonics, with very high correlations to all the PFM cycles.

They include the approximate 72-year Master Cycle and its 90-year sub-cycles, the 925-year Master Cycle and its 231-year sub-cycles, the PFM approximate 116,000-year Master Cycle and its 925-year sub-cycles, and finally to the approximate 460,000-year PFM Master Cycle and its associated 116,000-year sub-cycles.

It was also noted that each PFM Master Cycle is made up of 2 large PFM sub-cycles and 3 smaller sub-cycles sandwiched between them, with the 2 larger cycles forming a goalpost effect. It was also demonstrated that the warmest temperatures occur on the 2 larger cycles and the coolest periods around the middle of the smaller cycles.

As shown in Figures 17 through 25, the warmest global warming episodes indeed occurred on the left goalpost centered around 1100, and right goalpost near 2000 . It was also shown that the PFM cycles ranging from the 18.5 year Master Cycle and its 4.63-year sub-cycles, have extremely similar harmonics to longer period cycles such as, the 925-year PFM Master Cycle and 231-year sub cycles, all the way out to the approximate 460,000-year Master PFM cycle and 116,000 sub-cycles.

It was demonstrated that the warmest portion of each 231-year global warming cycle occur on twin 9-year peaks which are separated by an approximate 72-year Master PFM cycle (18.5 x 4 = approximate 72 year master cycle). These approximate 9-year temperature peaks occur during the first half of each 18.5 year sub cycle of this 72 year Master Cycles (18.5 divided by 2 = 9 years, or sub cycle 4.63 x 2 = 9-years), thus forming warm goalposts with 3 cooler 18.5 year cycles between. This same scenario was also demonstrated in the 231-year cycles, 925-year cycles as noted in the twin temperature peaks observed in the 1930s and from 2000 to 2008, and in the twin temperature peaks of all 5 global warming cycles during the past 1000-years.

Looking at the approximate 460,000-year PFM and temperature cycle, it is interesting to determine if the left goalpost approximately 425,000 to 460,000 years ago is as warm as the current right goalpost shown on the right side of Figure 26. Figures 2, 3 and 26 provide insights to determine whether it is true. It is interesting to note that drilling at Lake Vostok has reached a depth 3,623 meters, with the age of the ice at this depth being approximately 425,000 years old. It is also interesting to note that this is nearly at the bottom of the ice pack, which likely means Lake Vostok was nearly void of ice 425,000 to 460,000 year ago.

The study of the 4 tables in Figures 10-13 likewise indicate that all 4 mega 116,000 year global warming cycles during the past 333,000 years showed an increase in carbon dioxide concentrations of 44 to 51%. The current cycle shows an increase of 49%. With the current cycle now peaking, it is hypothesized the current concentrations are within accepted natural cyclical values. It is also concluded that these natural rises and values are caused by a very complex natural global warming feedback system that responds to natural warming cycles. It is also concluded that the rise in carbon dioxide is a natural event in all 5 mega cycles going back 460,000 years, and that present time concentrations are very similar to the very warm goalpost cycle occurring 425,000 to 460,000 years ago.

This is a strong indication that the current approximate 116,000-year temperature and carbon dioxide peak over the Antarctic conforms to the Master

PFM cycle goalpost hypothesis. This also means that the current PFM cycle, Antarctic warming and carbon dioxide peak is a warmest right hand goalpost cycle, with 3 cooler cycles during the prior 350,000-years, and a very warm left side goalpost cycle 425,000 to 460,000 years before the present. This explains why the ice pack was very small during that particular cycle, and why the current ice pack is thinning again at rates not seen since this warm-up 425,000 years ago.

9. Conclusion

Global Weather Oscillations, Inc. (GWO) was founded in 1992 to test the specific concept that many climate oscillations, both short-term and long-term changes, are recurring cycles that can be predicted. The objective of this study was to isolate the primary forcing mechanism(s) that cause short-term and long-term climate oscillations, and specifically global warming and global cooling.

This research uses the discovery of the Primary Forcing Mechanism (PFM) as the primary fundamental link between the cycles of specific lunar syzygy declinations to the cycles of global warming and global cooling. Further, it is shown that this linkage is prognostic and accounts for the variability of the cycles, thus making the correlations found in this study of great significance in the field of climate oscillation forecasting.

It is therefore concluded that the reason for the magnitude of the current "natural" global warming - carbon dioxide cycle is not primarily due to industrial age carbon dioxide emissions since 1850, but instead due to the fact that earth is presently at the peak of 7 Primary Forcing Mechanism (PFM) cycles. These cycles are the approximate 460,000-year cycle, 116,000-year cycle, 5,000 year cycle, 925-year cycle, 231-year cycle, the 72-year cycle, and 9-year cycle.

Correlations of reconstructed temperatures and global warming cycles with PFM cycles for a period of over nearly a half million years, indicate that natural global warming and cooling cycles, and their associated natural carbon dioxide cycles, have a very high correlation to the long-term declination cycles of the moon's gravitational declination cycles.

Other findings indicate that carbon dioxide is a minor greenhouse gas, and that the accumulating atmospheric carbon dioxide levels are not a major contributor to the onset or magnitude of global warming cycles.

My findings indicate that the moon's gravitational declination cycles are the "Primary Forcing Mechanisms" and the major factor in the occurrence of global warming and cooling cycles. It is accomplished by the PFM inducing the displacement of regional semi-permanent oceanic anticyclones. (High-Pressure centers), and it was also found that the majority of the increase in carbon dioxide during global warming cycles is part of a natural cycle.

My research shows that the concurrence of 7 global warming cycles at the same time, is the cause for the warmest cycle in nearly a half million years. It was shown that all of these cycles are naturally occurring processes between the earth and the moon's gravitation cycles.

10. Global Warming – Cooling Forecast for 2008 and Beyond

Analyses of PFM and recreated temperature graphs in Section 8, indicates that the current global warming 231-year PFM cycle is expected to begin to decline between 2008 and 2014 with major declining of the PFM cycle around 2020-2024.

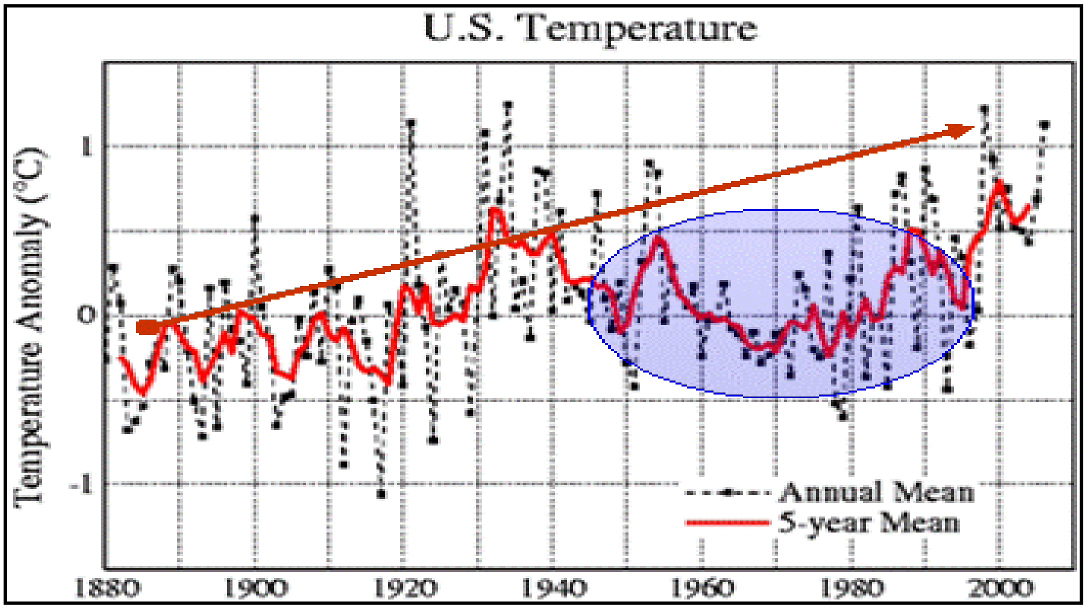

Figure 28: United States temperatures since 1880 showing twin temperatures peaks from 1932-1940 and 2000-2008, both of which correspond to the 9-year PFM cycle. Courtesy NASA 2007.

Further analyses indicate that the earliest date of 2008-09 for the initial phase of global cooling is attributed to the 9-year lunar cycle that is responsible for the twin 9-year temperature peaks that are seen within every global warming cycle. These peaks separated by approximately 72-years were clearly seen in each of the global warming cycles during the past 1,000 years.

The NASA United States temperature graph in Figure 28 confirms these findings. A 9-year temperature peak occurred from 1932 to 1940, followed by a 9-year period of cooling, then a minor warming peak over the next 5-years before cooling once again. One should note a very important 9-year declination cycle (4.63 x 2 = 9.2) controlling these cycles. As noted earlier, the approximate 9-year cycle occurs during the first half of each sub cycle of the 72-year PFM master cycle.

Further analysis of the NASA temperature graph indicates the second 9-year temperature peak of the current 231-year global warming cycle occurred as expected from 2000 to 2008, approximately 70-years following the beginning of the first peak in 1930.

This peak will be followed by a near 9-year cooling cycle, and it is this cycle that will signal the initial cooling phase for the ending of the current global warming cycle. This cycle will be followed by a minor 2 to 4 year warming (the 4.63 year PFM cycle), followed by an expected major and very rapid 30-year cooling.

The specific forecast for 2008 to 2170

Global Warming and Cooling

- 2008-2009: Global warming stabilizes and the initial phase of global cooling begins.
- 2009-2017: Moderate global cooling with temperatures matching those during much of years from 1941 to 1983.
- 2017-2022: Brief global warming, with a 2-year temperature peak resembling temperatures observed during the 1931-1940 and 2000-2007 warm period.
- 2022-2050: Second stage of global cooling begins, with major and very rapid cooling with temperatures rapidly falling and resembling mean temperature observed in the 1800s.
- 2125: Approximate date for the initial ending stage of global cooling cycle, the beginning of the initial stage of the next warming.
- 2160, 2390, 2620, 2850 are approximate dates for the first 10-year temperature peak during the next 4 global warming cycles. The first 3 cycles will be cooler than the current cycle peak (1930-2008), and the 4th cycle in 2850 will be a very warm right goalpost global warming cycle, possibly as warm as the current cycle, and near or at the beginning of the initial decline of the 116,000 year mega temperature and PFM peak.

- 1930 to approximately the year 2850 will be the peak of the current 116,000-year mega warming cycle.
- Approximately 2850 to 60,000 after present time will see a decline in the PFM cycle and the 116,000-year temperature cycle.

Carbon Dioxide Concentrations

- Although findings within this research indicate that carbon dioxide is primarily a by-product of global warming, and is not a major contributor to warming, a forecast for these natural cycles is provided here.
- 2008-2009: Natural introduction of carbon dioxide will begin to slow, and atmospheric concentrations are expected to begin stabilizing.
- 2009-2017: Stabilized carbon dioxide concentrations, with only a small increase in atmospheric concentrations possible.
- 2017-2022: Concentrations are expected to increase and slightly surpass concentration levels recorded in 2008. Carbon dioxide levels could reach as high as 400 to 410 ppm.
- 2022-3000:Over the next 1,000-years, each approximate 231-year global cooling cycle will have an approximate10 percent decrease in carbon dioxide PPM, and each global warming episode will have a 5 to 10 percent increase. Consequently there will be drops and rises in carbon dioxide concentrations during the 1 thousand year period, with the overall mean 230-year mean concentrations remaining relatively constant. This will be followed by a major drop in PPM concentrations after the 1 thousand year period, and more importantly after approximately 8 thousand years. This major drop will occur as the PFM cycle drops rapidly from the 116,000 peak and a natural build up of ice cover occurs,

Global Ice Pack

- 2008-2010: Stabilizing.
- 2010 to 2017: Restoration of the ice sheet extent underway with more extensive land area being covered by snow and ice for a longer period of time during the spring to summer months. Ice pack begins thickening.
- 2017 to about 2020: Slight deterioration of ice sheet and pack.
- 2020 to 2160: Will see significant restoration of ice pack.
- 2160 to 2950: Will see further reduction of ice pack with each of the 4 global warming cycles expected during the period, but most importantly with the right hand warm goalpost cycle in 2850. Restoration of ice pack will occur with each cooling cycle during these periods.
- When the (approximate) 116,000 year PFM cycle comes off its current peak following the right hand goalpost very warm cycle in 3000, rapid ice and snow pack restoration will continue for approximately 400,000 years, with the exception of some ice losses near and just after each approximate 116.000 year PFM cycle and their associated global warming cycles.

David A. Dilley of Global Weather Oscillations Inc funded the Primary Forcing Mechanism PFM research and this manuscript e-book.

11. Peer Reviewers

1. David Spiegler, President and Founder of DBS Weather Impact Corporation. Mr. Spiegler has published over 75 technical papers and reports. Papers in professional journals include: *Journal of Applied Meteorology, Monthly Weather Review, Bulletin of the American Meteorological Society,* and *Weatherwise.* Mr. Spiegler also served as a Peer Reviewer for professional journals including, *Monthly Weather Review, Weather and Forecasting, and Bulletin of the American Meteorological Society*.
2. Mark S Breen, Senior Meteorologist and Planetarium Director, Fairbanks Museum and Planetarium of Natural Science, St. Johnsbury, Vermont.
3. Brad Sussman, Meteorologist, FOX 8 Cleveland, and Weather Columnist Northern Ohio News-Herald.
4. Thomas P McGuire, Meteorologist, National Weather Service (Retired); former Area Manager for Southern New England National Weather Service.

Acknowledgement: I thank Kelly korynta for proof reading and providing non meteorological layman advice.

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