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The Anthropogenic Agents Influences of Increasing Temperature for Various Emission Scenarios.

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Abstract:
The continuous monitoring by the different international agencies which support the undertaken study represented by Inter Governmental Panel on climate change (IPCC), Environmental Pollution Agencies (EPA) and the claims and activities of the Non Governmental Organizations (NGO) which are focused on providing reliable environment to all peoples around the world , and also the previous environmental studies on various carbon monoxide and carbon dioxide emissions scenarios, determine as one of the most threaten gases, in addition to the other green house gases (ghg). The incremental variations of this type of gases already heat our planet earth, indicated by the application of standard deviation for the end of this century attain to 2.5, and output climate pattern that the anthropogenic with natural (volcanoes, solar, green house gases, sulfates and ozone) will lead to desertification and climate changes, decreases of rain and convert wide areas around the world to arid zones. Predicting future climate is obvious enough through the scene of dusty storms that will frequently happen, thinking that is due to the local environmental causes , and by deforestation , and so many agents, but regionally and by space images and landscape studies indicate that the major influences is the increasing of carbon dioxide which attain to more than 350 ppm. Carbon dioxide is continually added to the atmosphere through fossil –fuel burning, as well as by natural processes, including respiration by all oxygen –breathing organisms. The evidences accordingly refer to the increase in the earth temperature which attains to approximately 4 C◦ and 7.2 F◦ causes rapid inversion and changing the climate, so the surface air temperature is 22 C◦ in 1999 will be accordingly more than 26 C◦ in 2090.The aid to solve this problem depending mainly on political decision and more climate summit meetings to rescue the Earth from wide catastrophic threatening.

Key words: Greenhouse gases , Global warming ,Climate change

Introduction:

Anthropogenic agents (human activity), are diagnosed since three decades and climatic zones shift overtime. In addition, topography changes, global temperatures change, and plate motions move landmasses to different latitudes, Montgomery (1997). All these consequences will lead to change and deform the environment , which is already being noticeable on the whole atmosphere, precisely by adding so much undesirable materials to the nature causing wide and disastrous pollution either to water or air ,and changing scarily the constant ratios of the Ecosystem, Lewis et al (2004) , and the wide influences which are directly affects the increasing of the ratios of greenhouse gases ,which lead to form the known natural problem called the global warming. The case will be familiar and the studies should focused not only for the certain areas ,but in this type of studies should have take in consideration so many parameters to avoid the bad consequences of the great influences of rising undesirable gases that ultimately causes wide destructions to the whole nature .The industrial countries are of certainly the main source of this type of disastrous pollution that extend the affection of the rising temperature to other urban, which is not so much deals with any type of industry. The undertaken study is focused on one of the most important natural features called dust storms, that strikes so many countries from time to time, and its influences increased with the increasing of green house gases to include so many countries closer to deserts, to form one of the most threaten agents by extending the areas of deserts forming the most current and natural disastrous geographic features called Desertification.

The effects of climate –change _Induced drought

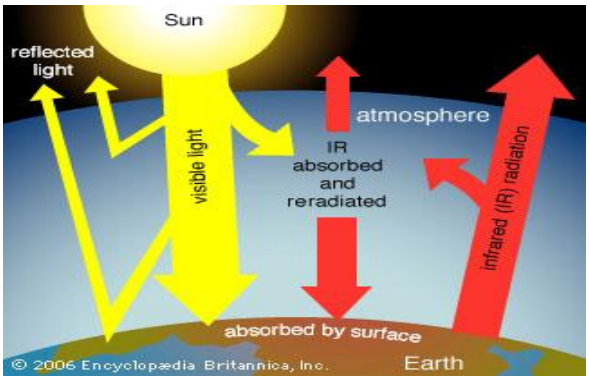
Virtually every aspect of the planet Earth, especially climate, has changed over the last four billion years. There is no reason to believe that these changes will cease, or more to the point, that we can stop such changes because they are now impacting our daily lives .From a geological point of view global climate change is inevitable, and we need to ask ourselves whether our efforts to curb such change is likely to have the desired

mitigation effect? While the solution is complicated and certainly cannot be answered within such a research, but the goal is to help put global change with respect to various scenarios performed in one of the most developed laboratories .The Earth climate has changed considerably throughout geologic time and ironically ,we live at one of the few times when global climate is what geologists called "Icehouse condition" ,for most of Earth's history "hothouse or green house condition "prevailed, ice caps were absent ,and the average global temperature was considerably warmer than present. The consensus among scientists is the anthropogenic input of greenhouse gases to the atmosphere, particularly carbon dioxide (CO2) have triggered a phase of global warming (Solomon etal, 2007; Rosen weig etal, 2008). The pace and intensity of future warming and the associated significant environmental changes are likely to be governed, in part, by anthropogenic green house gas inputs

Global warming:

Defined as that some incoming sunlight is reflected by the Earth's atmosphere and surface but most is absorbed by *the surface, which is warmed. Infrared (IR) radiation* is then emitted from the surface. Some IR radiation escapes to space, but some is absorbed by the atmosphere's greenhouse gases (water vapor, carbon dioxide, and methane) and reradiated in all directions, some to space and some back toward the surface, where it further warms the surface and the lower atmosphere, forming recently common phenomenons in all over the world. The possibility that human actions are changing Earth's climate will be one of the most pressing concerns of the twenty first century (Encyclopedia Britannica, 2006), Figure-1. Climate greatly influences the distribution of life on Earth .Changes in temperature or moisture can alter populations, killing some organisms outright, stressing others, or causing migrations. Average global temperatures are increasing, with calculations projected from existing data predicting a rise in temperature of 2.5◦F (1.4◦C) by 2050. The primary cause of global warming is elevation in the concentration of CO2 in the atmosphere .Carbon dioxide is a colorless, odorless gas present at a concentration of 370 parts per million. Although it is a minor atmospheric constituent, CO2 has major effects on life by influencing temperature.

CO2 that blankets Earth prevent radiation from exiting the atmosphere as quickly as it enters. CO2 does not absorb short-wave solar radiation, including light waves. Thus, light reaches Earth's surface, where it is transduced to heat .The surface radiates long –wave heat radiation out ward, but CO2 absorbs this radiation and reradiates some of it back toward Earth's surface, trapping heat there .This increase in surface temperature is called greenhouse effect, because CO2 blocks heat escape much as do the glass panes of a greenhouse (E. Other gases that contribute to the greenhouse effect include methane, nitrous oxide, and CFCs .These gases trap heat much more efficiently than does CO2, but because they are scarcer, they contribute only half as much to global warming. CO2 level (Lewis, 2004), and global average Temperature Figure -2. The presence of high ratios of greenhouse gases is already consider as Anthropogenic input model , associated with natural temperature sourced from volcanic activities and solar energy, inclined from



natural temperature indicating the great influences of the increasing rate of temperature that exceeds warming and create wide spread climate changes Figure -3 .

Figure -1 Illustration of the global warming.

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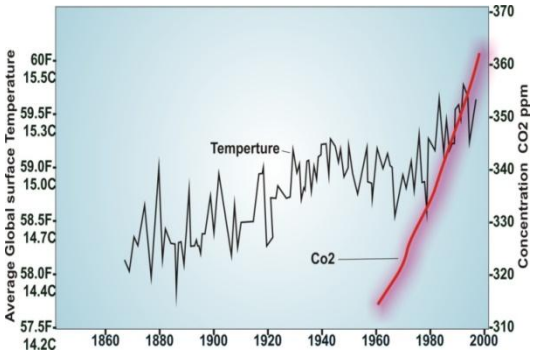
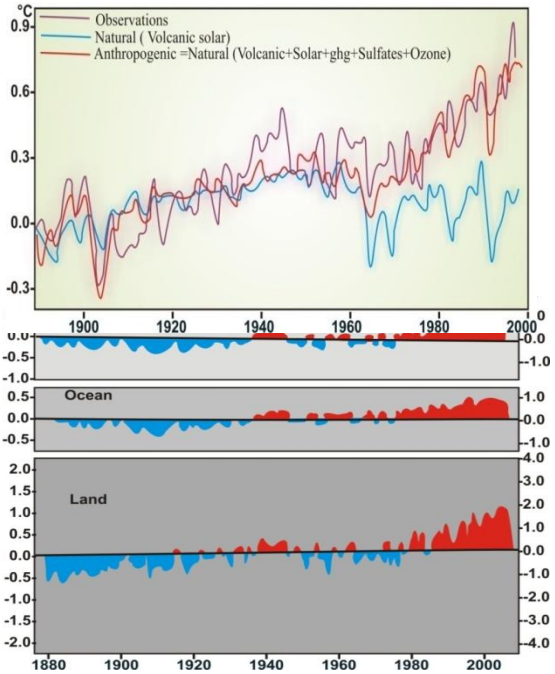


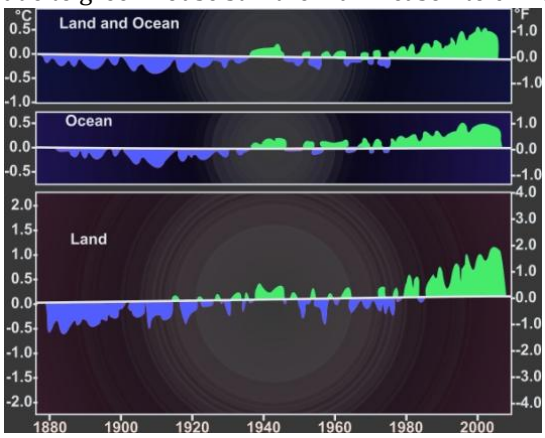
Figure -2 The correlation of CO2 level and average temperature (Lewis etal, 2004)

Figure - 3 The climate model output with the presences of global warming and beyond (IPCC)



Desertification:

The expansion of desert in to surrounding areas, it can be a natural process , a human –driven one ,or a combination of the two current desertification problems in Africa and Asia illustrate how short – sighted agricultural practices rob land of water. Although there are so many reasons for desertification in Africa, the problem is cattle grazing and in Asia it is growing cotton, so drought is not usual in this part of the world, and desertification is not limited. In many nations ,overgrazing ,improper irrigation ,unregulated vehicle activity ,and other human impacts are degrading arid lands .The extra ordinary warming due to green house still the main reason to climate



change and thermal inversion by smog (smoke + fog) and acid rain ,also the surface temperature exceeds abnormally , all these agents and another pollutants contribute in expanding deserts. The deviation of moderate surface temperature of the Earth (land and ocean) along a century indicates actual rising approximately 1◦C on the land and 0.5◦C on the ocean refer clearly to a disastrous result in case the monitoring is absent. Figure -4.

The deviation of moderate surface temperature (land and sea) Figure -4

The influences of deserts on nearby regions

Even the most arid zones receive from 150 -200 mm (6-8in) of rainfall a year .In some parts there is no plant cover, elsewhere it is scattered .The process of erosion through natural causes is a serious problem and in dry regions such as deserts, the damaging consequences can be seen to striking effect . Erosion is particularly rife in the desert where there is nothing to combat the effects of considerable temperature variations. The erosive influence of wind actions, against which there is no obstacle, is very evident, and it is this that we shall discuss here. Wind erodes in two different ways: by abrasion, wearing away hard materials such as rock, and by deflation, the blowing away of loose material such as sand, which is itself a powerful abrasive agent. Winds sweep up the finer fragments of sand, the coarser grains remain where they are. The finer particles fall to the ground again in suitable places and are either added to dunes already there or form new

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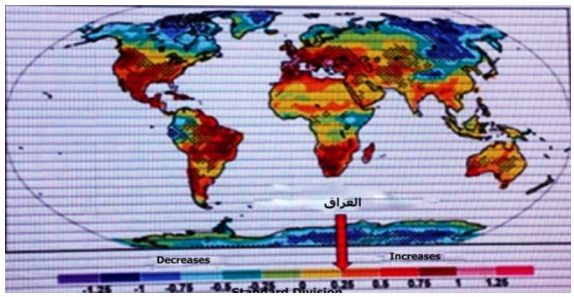
ones in the course of time. This mechanism is still working and affecting wide regions surrounding deserts and the affections of the local winds is so much restricted comparing to the expansion of the winds that strikes the nearby countries due to the incremental variations of global warming, that

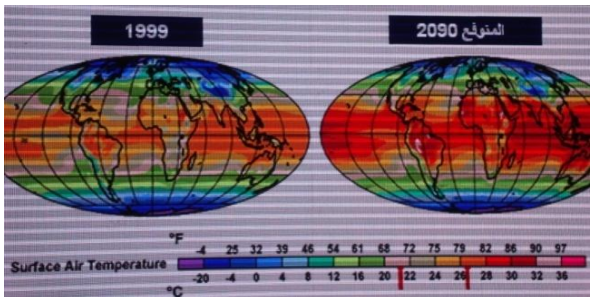


lead to form dust storms(Fig-5), and will extends the area under the influence of desertification .

The standard deviation simulation for drought days for the coming 100 years. Figure -5

Methodology:

Geologists have their view and ideas to estimate the changes in climate conditions with respect to wetlands, deserts and Antarctica studies and the tectonic frame, consequences of these various indicators lead to determine the hazardous future waiting the earth ,so stepping away from the geological evidences ,the international organization such as (IPCC, EPA) and so many global authorities monitoring the planet earth and set up various models depending on the measurements ,and hypothesis gained for the

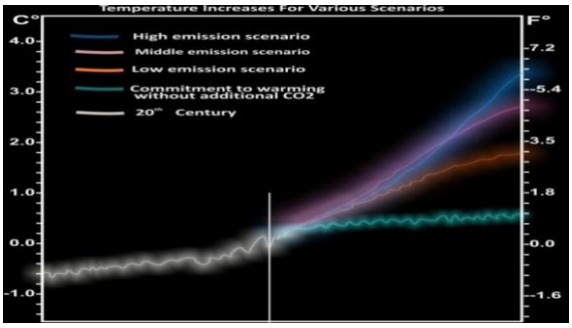


purpose of simulation . So the undertaken studies determine and reflect the anthropogenic input and declare the affection of increasing temperatures on climate changes. The application of the various emission scenarios (High, Medium and Low) clearly divert from the commitment of warming without CO2, based on the 20th century standard emission (Figure – 6) with two different scenes for the purpose of indication it as clear as possible.

Figure –6 Various Scenarios for Increasing Temperature

Predicting future climate

Everyone who has studied past climates agrees that climatic conditions have changed dramatically over time (Fig.7).Some of those changes appear to been slow, incremental variations that have persisted for millions of years . The Cretaceous climate started to cool at the Campanian and Maastrichtian (Huber et.al. 1995, 2002). While, such a decrease reached a maximum level in the Maastrichtian (Huber et al. 2002; Miller et al. 2005; Clarke and Jenkyns 1999), a sudden increase in temperature occurred at the end of this period (Li and Keller 1998) and surface water temperatures increased by 2-3 °C between ~65.45 and 65.1 Ma (Li and Keller 1998a,b; Barrera and Savin 1999). This was proved as well as by the oxygen isotope studies carried out by the deep-sea drillings at Atlantic, Pacific and Indian Oceans (Stott and Kennett, 1990; Barrera and



Huber 1990; Barrera et al. 1997; D'Hondt and Lindinger 1994; Li and Keller 1998a,b; Corfield and Norris 1996; Zachos et al. 1985, 1989; Abramovich and Keller 2003) at Elles (Tunisia), (Stuben et al. 2003), Bass River (New Jersey) (Olsson et al. 2001) and in the Boreal Realm (Schönfeld 1990; Friedrich et al. 2008).

The Early Cenozoic is defined as the climatic and oceanographic transition period from the Cretaceous, Greenhouse, to the Neocene, also known as Icehouse. The Mid Paleocene (Selandian) is known as the first step of global warming after the Cretaceous/Tertiary perturbation. This global warming finishes after Paleocene-Eocene thermal maximum, super green-house period, at Early Eocene (Zachos et al. 2003). This study was conducted to explore changes of selected nannofossil assemblages and

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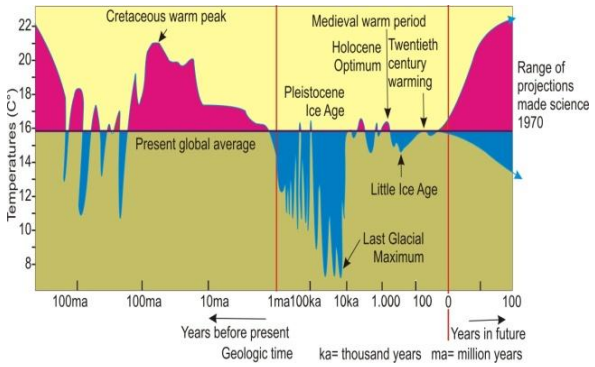
paleogeographic changes by the help of stable carbon and oxygen isotopes between **Maastrichtian** and Lower Paleocene **period** in the Akveren Formation (western Black Sea) is related to post rift thermally subsidence**.** Within the period for which more data are available, and especially the last few thousand years, significant global changes in temperature have taken place within decades Spencer (2003). The record of variation in global temperature for the past thousand years assembled by IPCC depicts a gradual drop in temperature averages until the last century when temperature increased about 0.5 ◦C (0.9◦F). The last century shows rises in temperature that are far above natural variability. The conclusion according to these effects of increased greenhouse gases and changes in land use, notably the conversion of forestland to cropland, evidences of desertification, cause these rises.

The scenario behind doubling of the carbon dioxide content of the atmosphere suggest even higher temperatures in the range of 1 ◦C to 4 C◦ by the year 2100 (Figure- 7).

Figure-7 The Temperature record of the Earth over Geologic Time .Note the use of logarithmic scale and the prominent breaks that occur at the present and at one million years before the present.



The estimated temperature degree of the surface air for the coming Century. Figure -8

Conclusions:

Studies are still in the early stages of deciphering the causes of climatic change with enough precision to make reliable long –term predictions ,but it seems clear that long term climate for the whole Earth depends on the amount of solar radiation reaching the surface of the Earth.

Risk assessment expressed by so many scenarios is indeed forming precautions and suggests that drastic change could occur in the future, alarming globally all authorities, peoples and coming generations are coming to face very bad consequences in front, unless consideration should be taken to protect the planet earth from major destructions ahead by sequestration of this gas from the industrial complexes this will lead to mitigation. Accordingly the heat of the sun which is not discussed here for it is a part of natural affection, otherwise the e global warming caused by incremental variations of carbon dioxide CO2 within the atmosphere.

From these data, it is clear that sharp climate changes are superimposed on the long –term trends related to solar insolation. For this reason, special attention to recent changes in the greenhouse –gas content of the atmosphere is warranted.

No more dependable and variations of references, cause this research is based on noticeable and predications. The only could serve my approach is the follows.

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