A GENERAL OVERVIEW ON GLOBAL CLIMATE CHANGE

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- Reflection of the Problem to the Masses of Ordinary People Who Live It
- A Review on Published Studies Made on Global Climate Change
- Conclusions and Recommendations In 15 Questions

ABSTRACT

Herein first,

In order to answer the questions

"what happen?"

"why?"

"how?"

"how much?"

"What have to be done?"

the previous researches on the "global climate change" have been abstracted, discussed, and concluded briefly.

ABSTRACT

Ozone layer depletion (or the hole in the ozone layer) and then global climate change are the two important issues in the agenda of the world communities since 1980s. In general mostly the two problems are known as the same.

ABSTRACT

Although the reasons of them are similar and one triggers the other, however, they are different problems. Due to their serious impacts upon almost all aspects of the life and the environment, the two problems are globally discussed among the members of all the vital sectors of the life.

ABSTRACT

In this study, in the light of the recent literature the past, the current, and the future of the global climate change are presented with its all aspects.

ABSTRACT

When a problem is tried to be presented in detail, sometimes a few points are off target. So in this paper the problem is not evaluated in detail, main dimensions are only discussed.

ABSTRACT

The paper will give to the readers the answers to three specified questions: 1) currently is the human faced with the global climate change or not? 2) "How much we have faced?", and 3) "Is the reality as terrible as exaggerated or not?

INTRODUCTION

As well known, from 1980s, the first issue (OLD) had been discussed at least for two decades among scientists, environmental groups, civil society organizations, politicians, stakeholders, and almost all the sectors of the life.

INTRODUCTION

At that time, numerous scientific articles have pointed out the hole or the depletion in ozone layer (Table 1).

INTRODUCTION

Furthermore, important news and political opinions or statements could be seen extremely and widespreadly in the past.

INTRODUCTION

The ozone layer depletion leads to a significant increase in the surface Ultraviolet levels. The increase in the surface Ultraviolet levels causes many health and environmental consequences (i.e. skin cancer, cataract and immunity suppression, global warming, loss of agricultural products that in turn leads to a loss of farmers and food, changes in the physiology of plants affecting plant growth and crop yield, threaten the survival of certain species such as amphibians and larvae, destruction of phytoplankton affecting aquatic food chains).

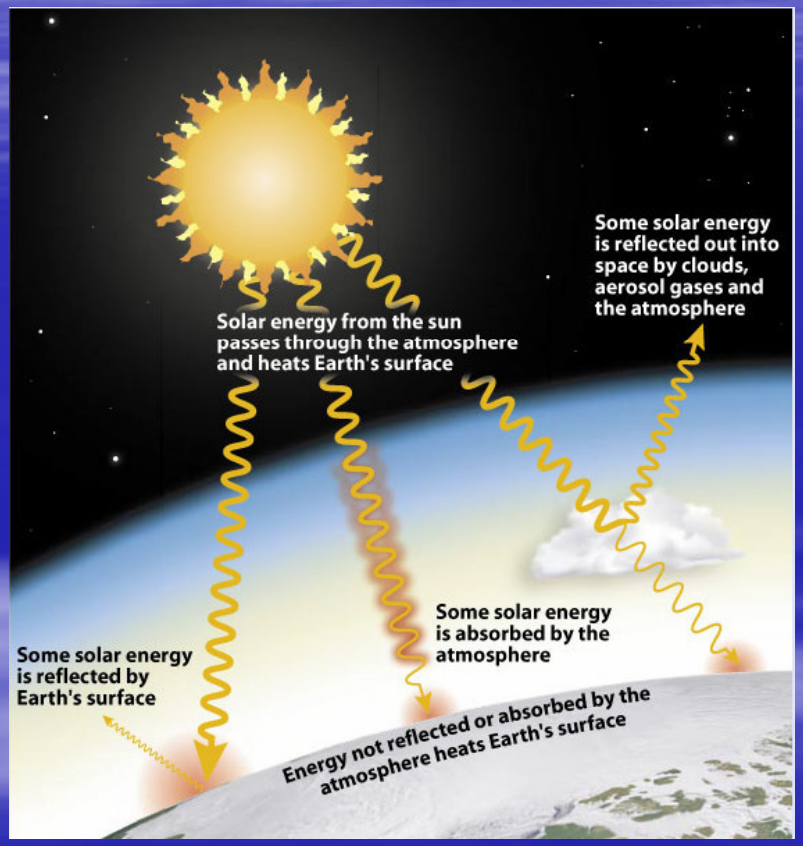
INTRODUCTION

So, the results of the depletion in the ozone layer are clearly visible in the short term.

INTRODUCTION

The second issue (GCC) widely discussed after 1980s.

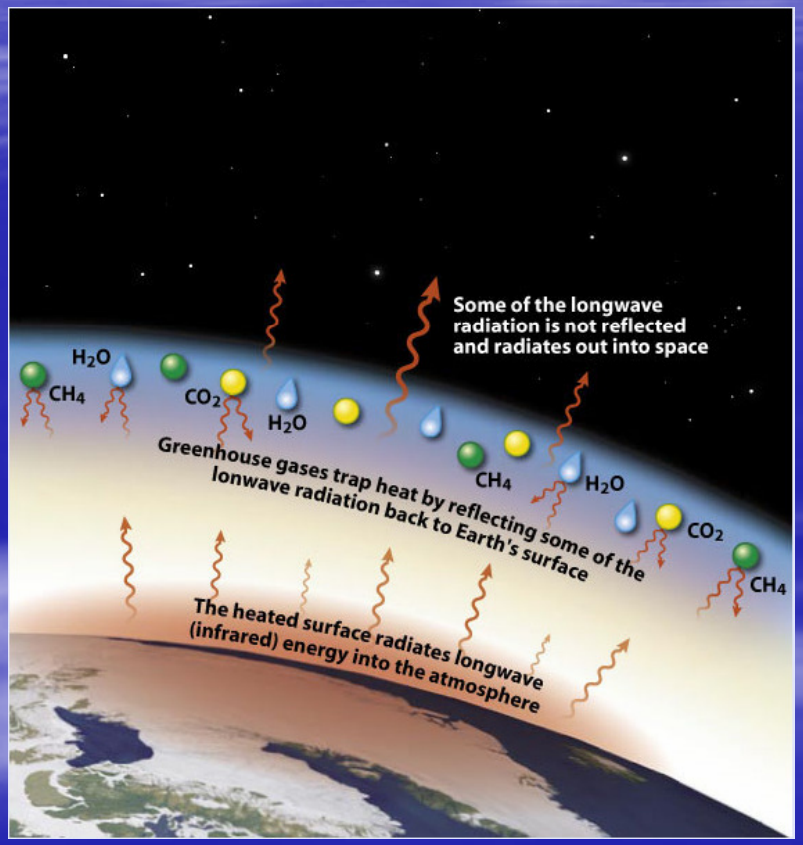
INTRODUCTION



Short-wave radiation that comes from the sun is reflected by the earth surface as long waves (Figure 1).

Figure 1 Short-wave radiation that comes from the sun is reflected by the earth surface as long waves (http://forces.si.edu/atmosphere/02_04_07.html)

INTRODUCTION



On the other hand, increase in greenhouse gases (i.e. water vapor, CO2, CO, SO2, NOx, CFC, etc.) in the atmosphere restrains reflection of such shortwave solar radiation from the earth surface to the atmosphere (Toprak et al. 2014).

INTRODUCTION

Previously (up to the end of the 1980s) the affects of the greenhouse gases were known only on temperature, therefore the problem was called as global warming.

INTRODUCTION

Later (after 1980s), it was recognized that the emission of greenhouse gases have effects not only on temperature but also on the other characteristics of both meteorolog (in short term) and climate (in long term) (i.e. rainfall, temperature, pressure, wind speed and its direction; number of flood, storms, and hurricanes; sea water level, snow thickness, snow-melting, glaciers-melting, fresh water resources, hydrological cycle etc.).

INTRODUCTION

Therefore the problem was re-defined. The emission of greenhouse gases led changes in the atmospheric, meteorological and climatic conditions locally or globally in the short and long-term horizons, which are called today as global climate change. This definition is more realistic than the previously made (global warming).

INTRODUCTION

The use of fossil energy sources produces the greenhouse gases, and consequently, IPCC reports claim that emission of such gases mostly depends on human activities at high percentages of 98% or 99% (IPCC, 2007; IPCC, 2013).

INTRODUCTION

Türkeş et al (2000) says that 1998 included abnormal and extreme meteorological and natural events. It was the warmest year of the last 140 years. Furthermore, 240 strong storms, 170 floods, 190 forest fire, numerous severe droughts and the warm as well as cold weather waves occurred in the same year (Turkeş et. al., 2000).

INTRODUCTION

The GCC has serious impacts upon the atmosphere, earth, and ocean. Therefore, the issue becomes internationally disputable subject among climatologists, atmospheric researchers, oceanographers, hydro-meteorologists, agriculturalists, and in particular, among local administrators including politicians as well as the people at different walks of life as Toprak et al. (2013) says.

INTRODUCTION

Such serious impacts of the GCC triggered the scientists, the governments, and the social organizations to make further researches as to measure and predict the consequences of the global climate change impacts.

INTRODUCTION

United Nations Framework Climate Change Convention (UNFCCC) and then Kyoto Protocol were signed in 1992 and 1997, respectively to alleviate the current situation. In addition to the protocols, Intergovernmental Panels on Climate Change (IPCC) are organized and their reports are periodically published (Batan et al., 2013; Toprak et al., 2013; Toprak, 2013; Toprak, 2011).

NUMERICAL COMPARISON OF SCIENTIFIC STUDIES MADE ON THE SUBJECT WITH THE PERSPECTIVE OF YEARS

YEARS	STUDIES MADE ON OZONE LAYER	STUDIES MADE ON GCC	STUDIES MADE ON WATER	YEARS	STUDIES MADE ON OZONE LAYER	STUDIES MADE ON GCC	STUDIES MADE ON WATER	YEARS	STUDIES MADE ON OZONE LAYER	STUDIES MADE ON GCC	STUDIES MADE ON WATER
1980	3	0	179	1991	32	351	933	2002	34	655	1380
1981	2	2	227	1992	39	373	993	2003	45	806	1466
1982	3	1	267	1993	26	356	1009	2004	30	837	1619
1983	3	2	259	1994	32	309	1072	2005	34	971	1617
1984	3	2	301	1995	43	391	994	2006	35	1023	1598
1985	3	2	239	1996	38	418	1182	2007	31	1469	1699
1986	3	8	229	1997	58	493	1273	2008	41	1863	1796
1987	9	6	225	1998	36	535	1463	2009	53	2267	1996
1988	14	13	212	1999	35	585	1257	2010	33	2289	2232
1989	26	73	226	2000	29	597	1447	2011	36	2542	2273
1990	24	193	325	2001	35	703	1446	2012	32	2568	1974
CORELATION COEFFICIENT	0,829	0,666			0,089	0,930			0,030	0,974	CORELATION COEFFICIENT
	0,810				0,058				0,167		
	0,865	0,953							0,036	0,903	
	0,848								0,081		
The number of SCI indexed publications made on ozone layer					900	22703	The number of SCI indexed publications made on GCC				
					All publications						
					23603						

In light of the above consideration, the Table 1 and Figure 2 can be concluded without any interpretation as follows:

NUMERICAL COMPARISON OF SCIENTIFIC STUDIES MADE ON THE SUBJECT WITH THE PERSPECTIVE OF YEARS

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Although the problem in ozone layer was recognized by the scientists in 1980, however in this year the GCC was not yet.

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For the first 11 years, the scientists have interested in both two topics with an increase trend year by year. This increase is more significant for GCC.

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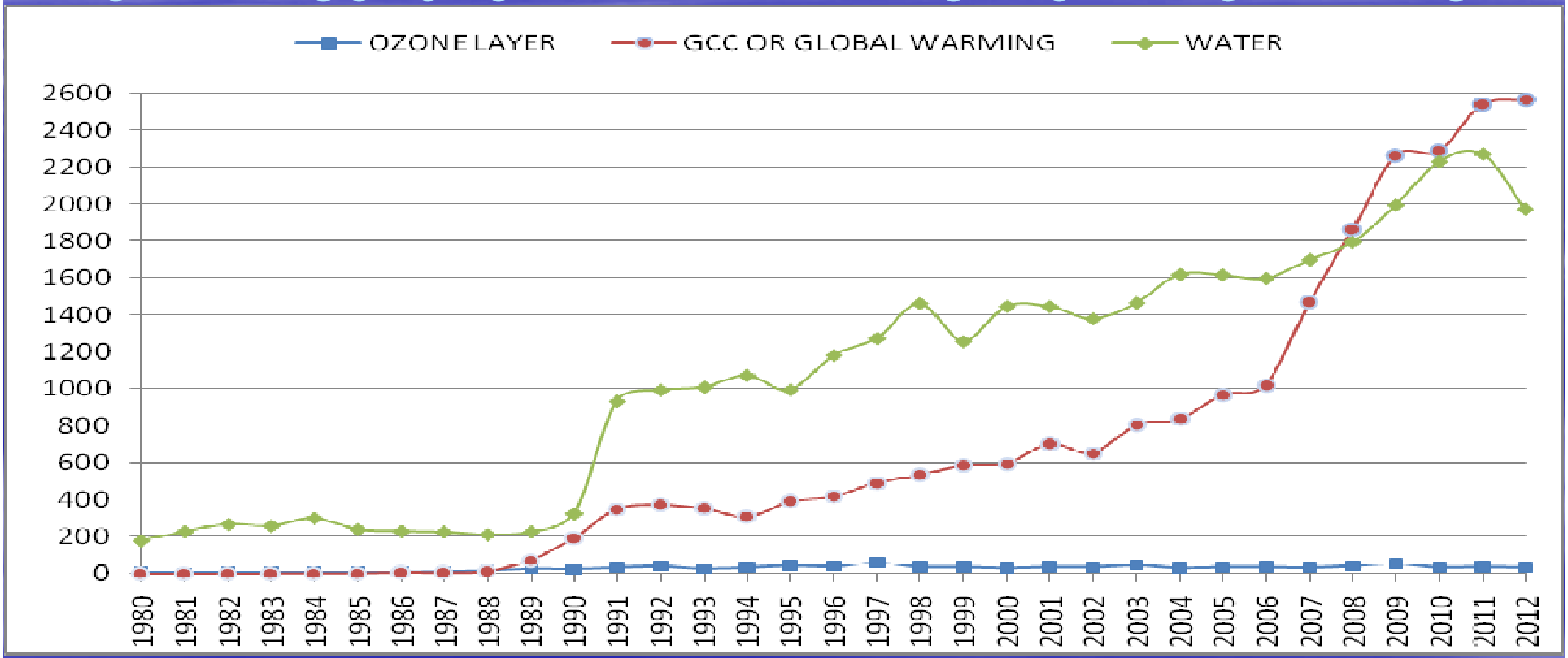
After 1990 the scientists have left the ozone layer depletion and instead they have preferred to interest in GCC.

NUMERICAL COMPARISON OF SCIENTIFIC STUDIES MADE ON THE SUBJECT WITH THE PERSPECTIVE OF YEARS

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In the next decades, this interest has increased significantly in GCC.

NUMERICAL COMPARISON OF SCIENTIFIC STUDIES MADE ON THE SUBJECT WITH THE PERSPECTIVE OF YEARS



Another interesting result can be extracted from the table as well as from the figure is fact that the studies made on GCC are more then those made on water after 2008.

REFLECTION OF THE PROBLEM TO THE MASSES OF ORDINARY PEOPLE WHO LIVE IT

Table 2 searching several important key words in GOOGLE engine

KEY WORDS	GOOGLE DATES	
	April 14, 2011	June 10, 2013
"GLOBAL WARMING"	42.300.000	66.300.000
"GLOBAL HEATING"	69.900	132.000
"GLOBAL CLIMATE CHANGE"	2.940.000	7.240.000
"KYOTO PROTOCOL"		4.740.000
"OZONE LAYER DEPLETION"		195.000
"CANCER"		646.000.000
"WATER"		2.950.000.000
"LOVE"		4.100.000.000

In order to investigate the reflection of the problem to masses of ordinary people who live it, the same keywords together with the "low" and "cancer" were searched in Google engine (April 14, 2011 and June 10, 2013).

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The results are presented comparatively for two different dates in Table 2. The key words were searched in English. Table 2 can be concluded without any interpretation as follows:

REFLECTION OF THE PROBLEM TO THE MASSES OF ORDINARY PEOPLE WHO LIVE IT

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The masses of ordinary people who live GCC still mainly mention the problem as "global warming". "Global climate change" has not been adopted among people yet.

REFLECTION OF THE PROBLEM TO THE MASSES OF ORDINARY PEOPLE WHO LIVE IT

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According to the data obtained in 2013, "global warming", "global heating", and "global climate change" have been mentioned 378 times more than "ozone layer depletion"

REFLECTION OF THE PROBLEM TO THE MASSES OF ORDINARY PEOPLE WHO LIVE IT

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According to the table from April 2011 to June 2013 33 Billion of pages about the first three key words have been added to the web (16.5 Billion of pages/year).

REFLECTION OF THE PROBLEM TO THE MASSES OF ORDINARY PEOPLE WHO LIVE IT

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Globally masses of ordinary people who live the problem still more interests in or talks about "low", "water", and "cancer", respectively.

REFLECTION OF THE PROBLEM TO THE MASSES OF ORDINARY PEOPLE WHO LIVE IT

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The Kyoto Protocol has globally taken place in the people agenda.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of Published Studies Based on Time Slices

The previous studies can be classified into three main categories on the basis of time slices.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of Published Studies Based on Time Slices

The first lots of studies concerning global climate change are completed prior to 1990.

These works can be regarded as pioneering works for the attraction of attention by scientists, administrators, and politicians all over the world at different countries.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of Published Studies Based on Time Slices

The works published between 1990 and 2000 can be accounted in the second category.

They concentrate on the question what might happen on different sectors such as energy, environment, water resources, food security, agriculture, etc.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of Published Studies Based on Time Slices

Works published after 2000 can be mentioned in the last class.

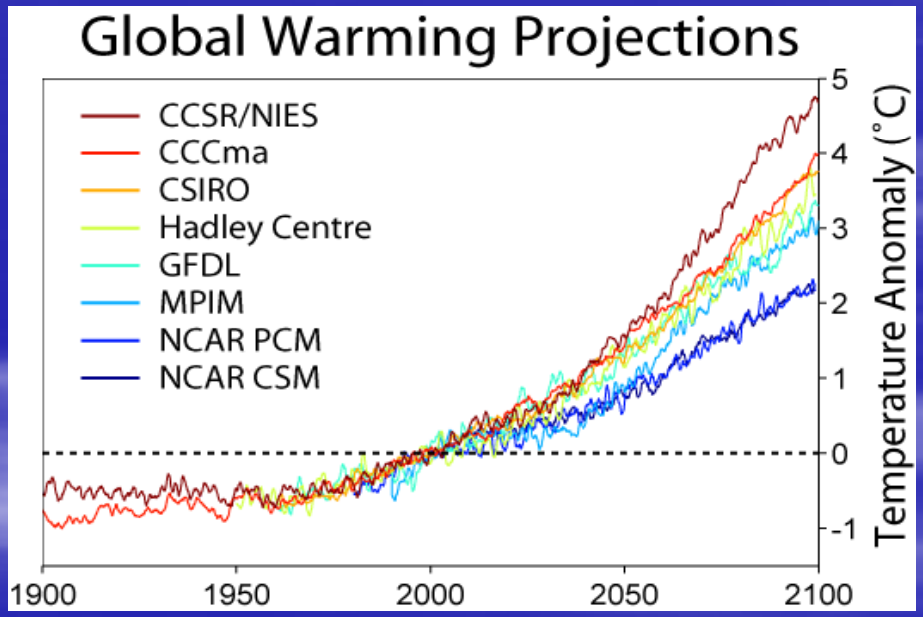
They have the target to interrogate the questions "why", "how", and "how much".

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

WHY?









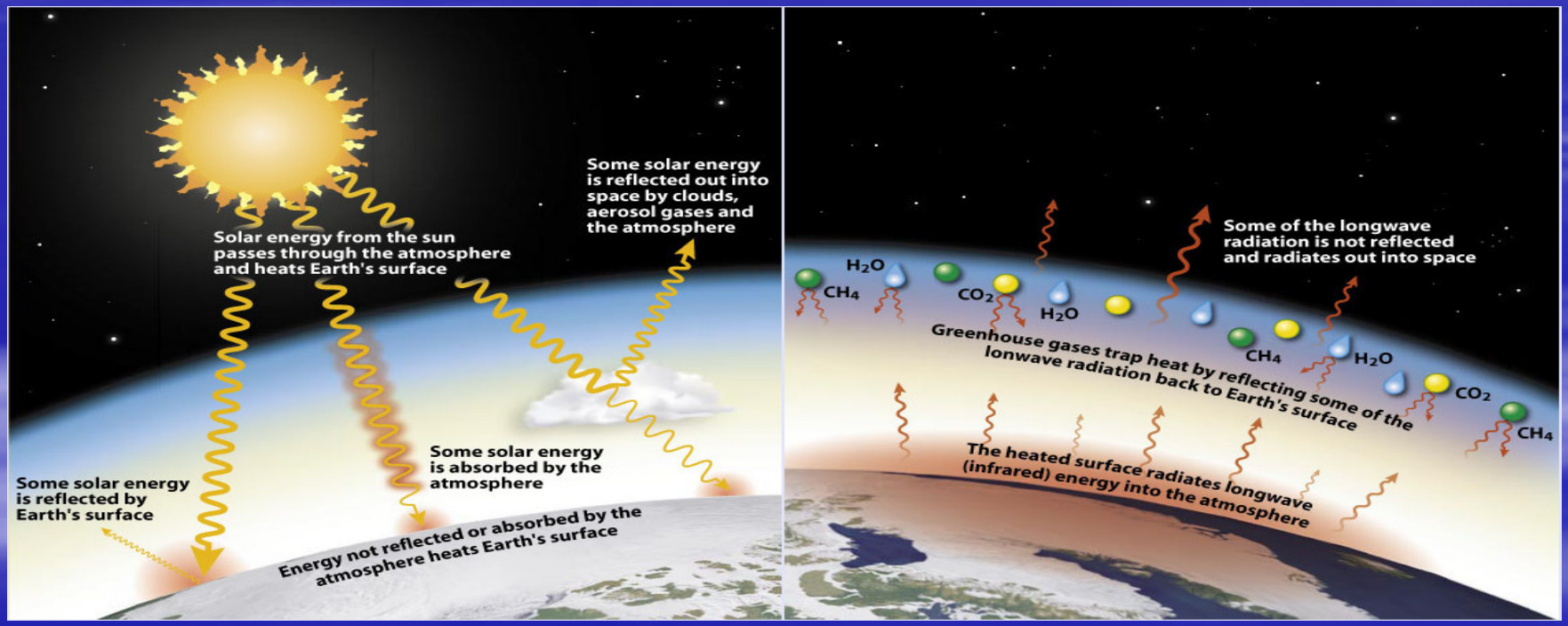


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A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

HOW?



BACK

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HOW MUCH?













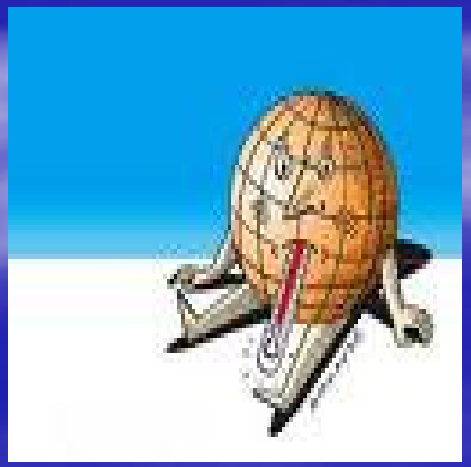


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A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

According to most researches "the earth has a fever". Among all the publications about 90% of the scientific articles put forward evidences on the existence of the global warming or global climate change (Toprak et al. 2013).







A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

On the other hand, "why", "how", and "how much" questions are among the second set of questions. Almost all scientists believe that the problem is present, but there is not a clear or strong agreement on the sizes, depths, dimensions and the effects as well as the reasons of the existing global problem says Toprak et al. (2013).

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

Therefore the published works or the researchers first should be classified into three groups:

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

First group published studies or researchers put forward evidences on the existence of the global warming or global climate change.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

These researchers believe that the problem is big just as it is reflected today.

WE LIVE IT







A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

Second group researchers or published works believe that the problem exists, however they have several doubts in its results and reasons.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

The third group researchers or published works have doubts in existence of the problem.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

Kickert and Krupa (1990), Kondratyev (1991), Schwartz (1992), Fields et al. (1993), şen (2009), Toprak et al. (2009), Buyukyildiz et al. (2010), Culley (2010), Davis et al. (2010), Ekholm et al. (2010), Falk (2010), Kreuzwieser and Gessler (2010), Maynard et al. (2010), Schreurs (2010), Thompson (2010), Şen et al. (2011), Toprak et al. (2011), Toprak et al. (2013), Batan and Toprak (2014), Batan (2014), and many others can be accounted among the publications put forwards evidences on existence of the GCC which can be mentioned in the first group.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

Accordingly, the Kyoto Protocol and IPCC establishment in 1992 can be mentioned among the outcomes of such a belief.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

In the second group, Kempton (1991), Hammerle et al. (1991), Horness (1991), Feldman (1991), Jutro (1991), Runge (1992), Jamieson (1992), and Read et al. (1994) Beckerman and Malkin (1994), Krupa (1997), Karl and Trenberth (2003), Lukac et al. (2010), Kreuzwieser and Gessler (2010), Boretti and Watson Thomas (2011), and Budzianowski (2011) can be mentioned.

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Approaches on Believing in GCC

A few researchers have doubts on the existence of the problem. Çelik (2011) mentioned such ideas this group (for detail please see the given referee).

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Approaches on Believing in GCC

It is now possible to say that humans live global climate change and environment and the globe warms up. However, there is not any consensus on its reasons, sizes, and effects.

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Approaches on Believing in GCC

Here in there is no need to discuss the approaches of first group researchers have not any doubts on the issue, because the majority of scientists are in this group and their opinion is well known.

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Approaches on Believing in GCC

On the other hand, due to the fact that there are numerous studies in the literature, it is almost impossible to mention such researchers one by one.

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Approaches on Believing in GCC

However, it is necessary to give place to the second group researchers have doubts on the issue, because they are in minority and they are not well known.

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Approaches on Believing in GCC

Hammerle et al. (1991) indicates that currently there is very limited evidence that man's activity has caused global warming. Additionally, the authors says that mathematical models of the earth's heat balance predict warming and associated climate changes, but their predictions have not been validated with actual data.

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Approaches on Believing in GCC

Jutro (1991) says that human activities are currently responsible for a species loss rate that is the most extreme in millions of years, and an alarmingly increasing rate of transformation and fragmentation of natural landscapes as suggested.

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Approaches on Believing in GCC

Jamieson (1992) claims that the expected results of the global climate change are not scientific, but they are ethic and politic.

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Approaches on Believing in GCC

Beckerman and Malkin (1994) indicate that IPCC reports have not been interrogated sufficiently, the reports represent several intellectual's idea, the media effects the civil society organizations and governments; the reality is not as terrible as exaggerated.

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Approaches on Believing in GCC

Krupa (1997) indicates that our knowledge of global climate change has many uncertainties.

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Approaches on Believing in GCC

Boretti and Watson Thomas (2011) says that the individual analysis of the raw temperature data from different measuring stations clearly shows that there is no warming globally occurring, with warming being conversely very well localized in time and space.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Approaches on Believing in GCC

Budzianowski (2011) concludes his/her work with an interesting statement: The effect of GHGs warms climate and simultaneously suspends the glaciation/glaciation cycles that periodically occurred in the past.

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Approaches on Believing in GCC

On the other hand, it can be easily understood that the other guess reasons of global warming can be accounted by El Nino, climatic period, astronomic processes, volcanoes, and natural and man-made greenhouse effect.

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Approaches on Believing in GCC

It should be noted herein that Kempton (1991), Hammerle et al. (1991), Horness (1991), Feldman (1991), Jutro (1991), Runge (1992), Jamieson (1992), and Read et al. (1994), Beckerman and Malkin (1994), and Krupa (1997) were published at the beginning of the understanding the problem, so they should be more interrogated.

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Approaches on Problem Solution

It is possible to say that there is a global (intergovernmental) agreement on solving the problem on the basis of IPCC recommendations.

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Approaches on Problem Solution

For instance, Kyoto Protocol is generated after the Third Assessment Report (TAR) of IPCC. As of October 2010, 191 states and one supranational union (the EU) have signed and ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change, which aims at combating global warming collectively.

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Approaches on Problem Solution

As previously stated that although it is possible to say that humans live global climate change environment and the globe warms up, however, there is not any consensus on its reasons, sizes, and effects.

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Approaches on Problem Solution

Concerning these points the related approaches on the problem solution can be classified into two categories as follows:

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Approaches on Problem Solution

1) Reduction in the greenhouse gases (this is an approach of the Kyoto Protocol seems to be a reason of the believing in human activities that affect the global climate change as reported by IPCC).

2) Adaptation to the Blue Planet's new conditions (this approach seems to be a reason of the believing in natural events (phenomenon) that affect the global climate change).

In 2007 IPCC report, it is indicated that man's activity has caused 98% of global warming.

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Approaches on Problem Solution

However, as mentioned previously, the scientists are not sure that man's activity has caused global warming with such high percentage.

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Approaches on Problem Solution

Kyoto Protocol seems to be a reason of the believing in the human activities that affect the global warming or global climate change. However, it should be noted that behind all global or regional reliable problems, it is possible to see one or more global or regional self-seekers, who exaggerate the problems bigger than usual, more effectible, and more dangerous.

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Approaches on Problem Solution

Scientists should present a systematic effort, to build a bridge between science and policy as well as among different sectors (i.e. civil society organizations, governments, politicians, and people) in global or regional climate change.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of the Published Works

Climate Change and Environment

Kickert and Krupa (1990), Schwartz (1992), Fields et al. (1993), Davis et al. (2010), Culley and Angelique (2010), Şen et al. (2011), Grasso et al. (2011), Buyukyildiz, Marti, and Yilmaz (2009), Toprak et al. (2013), Toprak et al. 2014 and many other are the works published on the impacts of the GCC on the environment.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of the Published Works

Climate Change and Environment

According to the above mentioned published works it can be say that the climate change can be accepted among the greatest environmental problems from the increasing energy consumption, urbanization, and deforestation events threatening the healthy life of people and environment.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of the Published Works

Climate Change and Glaciers

Mendelssohn and Dinar (2009), Buyukyildiz et al. (2009), Thompson (2010), Şen et al. (2011), Toprak et al. (2013), Toprak et al. 2014 are a few of numerous published works made on the relationship between climate change and glaciers as well as climate change and snow melts.

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Classification of the Published Works

Climate Change and Regions

Schreurs (2010), Brunettia et al. (2003), Chen et al. (2003), López-Moreno and García-Ruiz (2008), Schönfelda and de Abreu (2003), Gosselin and Mareschal (2003), Sertel et al. (2011), Al-Nuaimi and Nagelkerke (2011) and Şen et al. (2011) are the valuable works on the regional impacts of climate change.

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Classification of the Published Works

Climate Change and Modeling

There are numerous published works or reports to model regionally or globally changes in climate in the current literature. Şen (2009), Giannakopoulos et al. (2009), SAR, TAR and other IPCC reports, Toprak et al. (2009), Milanovich et al. (2010), and Toprak et al. (2013) are a few of such works.

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Classification of the Published Works

Climate Change and Climate Identity

In order to determine and follow the existence and the local impacts of global climate changes for any country or region, reliable data in a comparative, illustrative, and visual format are essential preliminary requirements. It will be more appropriate to use internationally common format in the meteorological observations and measurements records.

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of the Published Works

Climate Change and Climate Identity

For this aim, Toprak et al. (2011) introduced to the "climatic identity" concept and the concept was detailed in Toprak et al. (2013). In the Toprak et al. (2013) "Climatic Identity" is defined as "the distinction of a region from any other based on the climatic properties at a certain time or duration (period, cycle)".

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Classification of the Published Works

Climate Change and Climate Identity

"Climatic Identity" has been defined concerning which information should be reported in the commonly formatted records for further discussion and data base preparation prior to climate change modeling (Table 3).

A REVIEW ON PUBLISHED STUDIES MADE ON GLOBAL CLIMATE CHANGE

Classification of the Published Works

Climate Change and Climate Identity

The changes in climate are expressed by the climatic parameters such as temperature, wind speed, rainfall, humidity, evaporation, snow, and snow melt etc. The climate change processes vary according to both location and the time period, which necessitates local identifications.

Table 3 An example for climatic identity

Climate Variable	Temperature
Country	Turkey
Station	Diyarbakir Ctiy Center (number)
Date	(record date)

TIME PERIOD		STATISTICS							DEVIATON FROM POPULATION				VISUAL		
		Max	Min	Mean	S. Dev.	C. Skew.	C. Var.	Corr. C.	MARE	MSE	RMSE	SE	C. Map	Time Series	F. Histogram
LONG TERM	January														
	February														
	March														
	April														
	May														
	June														
	July														
	August														
	Semptember														
	October														
	November														
	December														
	Winter														
	Spring														
	Summer														
	Fall														
	Annual														
CURRENT YEAR	January														
	February														
	March														
	April														
	May														
	June														
	July														
	August														
	Semptember														
	October														
	November														
	December														
	Winter														
	Spring														
	Summer														
	Fall														
	Annual														

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

As the conclusion, it is possible to say according to most researches "the earth has a fever". Although almost all scientists believe that the problem is present, however there is not a clear or strong agreement on the sizes, the effects as well as the reasons of the existing global problem. Therefore, "why", "how", and "how much" questions can be listed among unanswered questions.

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

Accordingly the published works or the related researchers can be classified into three groups: 1) who put forward evidences on the existence of the global warming or global climate change, 2) who believes that the problem exists, however has several doubts in its results and reasons, and 3) who has doubts in existence of the problem.

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

Similarly mainly two different ways for the problem solution are proposed: 1) reduction in the greenhouse gases (this is an approach of the Kyoto Protocol seems to be a reason of the believing in human activities that affect the global climate change as reported by IPCC), 2) adaptation to the Blue Planet's new conditions (this approach seems to be a reason of the believing in natural events (phenomenon) that affect the global climate change).

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

On the other hand the problem should be discussed in the following 15 questions:

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

- Was there any hole or depletion in ozone layer in the past?
- If yes, who repaired it and when was it repaired?
- If no, why is it not globally in people's agenda?
- Does the OLD danger for human, other living, and environment in close, medium, and long term as much as GCC?
- Are the effects of the depletion in the ozone layer clearly visible in the short term?
- OLD has local or global effects?
- Why the scientists have given "global warming" up?

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

- Does global warming could not be proven?
- Is the "global climate change" more meaningful, accurate, and inclusive?
- Is it possible to forget the "Global climate change" just as "ozone depletion"?
- Is it possible to discuss later another global problem?
- Why still people talk more on love, water, and cancer after 30 years?
- Could not the people be convinced yet?

CONCLUSIONS AND RECOMMENDATIONS IN 15 QUESTIONS

- *Is it possible to see one or more global or regional self-seekers, who exaggerate the problems bigger than usual, more effectible, and more dangerous?*
- *Is it possible to obviate such a concern? Can the scientists do this?*

THANK YOU VERY MUCH FOR YOUR ATTENTION

MANY THANKS TO Prof. Zekai ŞEN