ISSN 2661-2666 (Online) International Scientific Journal Monte (ISJM) DOI: 10.33807/monte.20253282 Volume 10, No.1 (2025): April

CLIMATE CHANGES AND THEIR IMPACT ON THE SECURITY OF GLOBAL SOCIETY

PhD Ratomir Antonović *Institute for Serbian Culture Pristina – Leposavic*

Predrag Dželebdžić *Economic Academy of Brcko District, BiH*

Abstract

Global society is exposed to a variety of security risks. One of the key security challenges of today should be found in the negative climate changes, which have been very intense in the last few decades, and the consequences of the changes are increasingly drastic. Due to the permanent pollution of the planet and the creation of the "greenhouse" effect, there is an increase in temperatures and the creation of worse conditions for life. The glaciers of the South and North Poles are melting, the ocean and sea levels are rising, the level of ocean acidity is increasing, precipitation patterns are changing, certain mutations and changes in plant and animal life are occurring, and the safety of global society is threatened by drastic natural disasters, extremely high temperatures, strong winds, extremely heavy precipitation and other phenomena that are harmful to people and their property.

Keywords: climate, changes, natural disasters, security, risks.

INTRODUCTION

Climate changes represent a statistical distribution of weather patterns and changes last for a long period of time. Climate changes usually last several decades. They are caused by various factors such as biotic processes, variations in solar radiation, tectonic plate movements, volcanic eruptions and global warming.

Biotic processes are divided into three groups based on environmental factors. Environmental factors act in a complex manner, they continuously change in space and time and are mutually conditioned. Environmental factors are divided into abiotic, which represent the physical and chemical conditions of the environment, and biotic, which include the influence of other living beings on the organism.

Abiotic factors are determined in mutual relationships that can be very diverse. They come from living beings and are an environmental factor. Abiotic factors are divided into mutual influences between organisms, human influences and the influences of living organisms on the external environment.

The impacts can be reflected in the impact on plants, animals, the impact of plants on animals, animals on plants, as well as mutual impacts of plants and animals. Relationships are best demonstrated through the example of a food chain. These are actually the most important

mutual relationships that rule in the ecosystem. Also, relationships are observed through the process of biocenosis, specific relationships that are related to housing, reproduction, dispersion or displacement of members of a community. Human influence is the strongest and is considered a special anthropogenic environmental factor (Muir, 2000: 250).

The influence of living beings on the external inanimate environment should be emphasized. Oxygen, as well as a good part of the carbon monoxide in the atmosphere and water, comes from living organisms, which develop food chains and develop relationships between producers, consumers and decomposers. Limestone rocks are formed as a result of centuries of deposition of the shells of sea and ocean organisms. Green woody plants that existed in the distant past were formed from deposits of needles, oil and natural gases.

The mutual influence of plants in the same habitat can be indirect or direct. The immediate impact is manifested through symbiosis and parasitism. In symbiosis, one organism is the host, while the other is a parasite. However, in symbiosis both organisms benefit from each other. Parasitism, commensalism and mutatism arise from the relationship of symbiosis (Hilje, 1984: 58).

1. METHODOLOGY

Climate change is a challenge for the whole world today. The consequences of climate change are manifested through drastic and very extreme weather patterns. The melting of the North and South Poles, rising ocean and sea levels, extreme droughts, precipitation, strong winds and similar phenomena have caused numerous difficulties in the everyday life of ordinary people.

The aim of this paper is to consider the potential possibilities of suppressing and preventing the harmful consequences caused by climate change at the global level. Also, the work indicates the measures that must be taken in order to protect the global population from extreme weather conditions.

The basic hypothesis of the work is: The action of the human factor on nature has caused numerous climate changes, which today threaten the life of humanity on a global level. Auxiliary hypotheses are: Reducing the use of fossil fuels and the use of fuels from alternative sources can contribute to the reduction of global warming, as the most harmful consequence of climate change. The most developed countries of the world must work on raising preventive and expeditious measures in case of extreme climatic conditions, such as large fires, floods, earthquakes, storms and similar natural disasters.

In the work itself, well-known scientific techniques and methods are used. Methods of analysis and synthesis of relevant literature content, methods of description, comparison, specialization and generalization are used. The scientific justification of the work is reflected in the contribution to the academic community in solving a significant problem that is becoming more and more relevant from year to year. The social justification of the work is manifested through

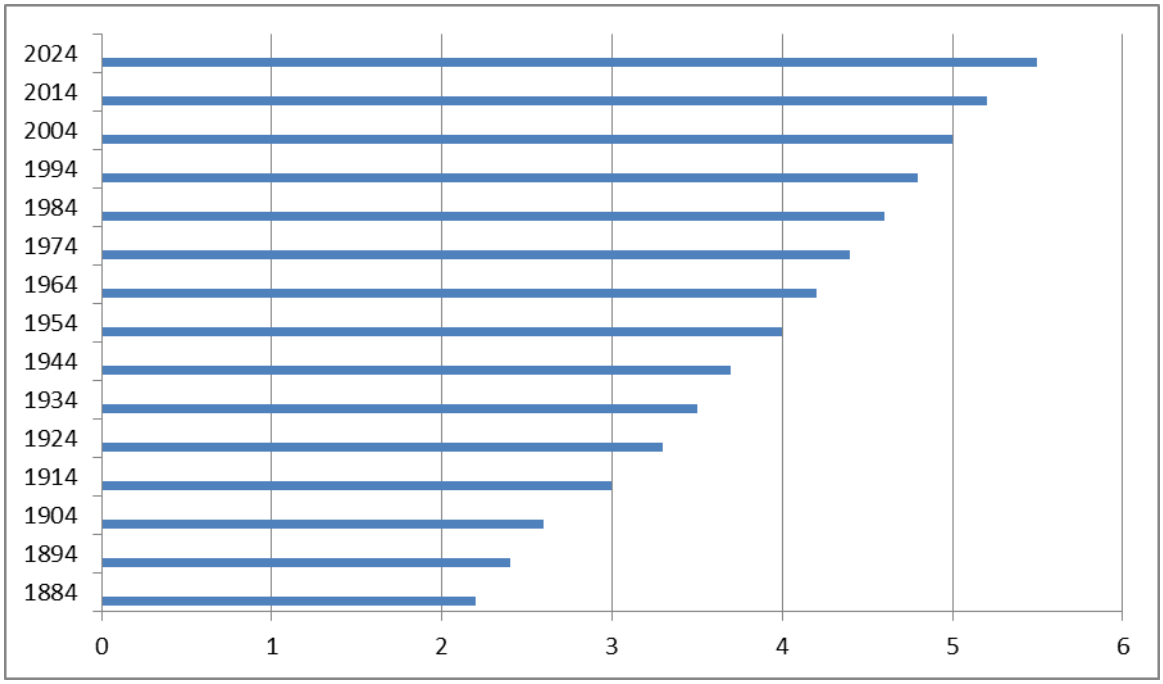
ISSN 2661-2666 (Online) International Scientific Journal Monte (ISJM) DOI: 10.33807/monte.20253282 Volume 10, No.1 (2025): April

the analysis of the significant topic of climate change, as well as the consequences of climate change, which significantly threaten the population of planet Earth. The topicality of the topic is best seen through extreme climate changes that cause extremely strong droughts, rains, extremely strong storms followed by strong winds and other phenomena, which were not so frequent and prevalent before.

2. DISCUSSION AND RESULTS

In the observed time period of 140 years, the planet Earth warmed by one degree on average. Although at first glance it seems that this is not a drastic increase in temperature, it is actually an increase that causes numerous climatic changes (Dubak, 2017: 19). Table 1 shows the rise in temperature on Earth during the observed time period:

Table 1: Temporal averages of temperature:



In the observed period of time, a constant increase in average temperatures is clearly observed. Temperatures have been increasing progressively in the last three to four decades, which is associated with the creation of damage to the ozone layer, but also with the increasing use of fossil fuels and other harmful gases and pollutants.

As a problem, the so-called the greenhouse effect, which occurs due to enormously high concentrations of carbon monoxide, as well as other gases whose concentration is high in the Earth's atmosphere. Gases of different structures and origins contribute to the greenhouse effect, and harmful gases are released into the atmosphere to a large extent by human activity (Belić, 2006: 45).

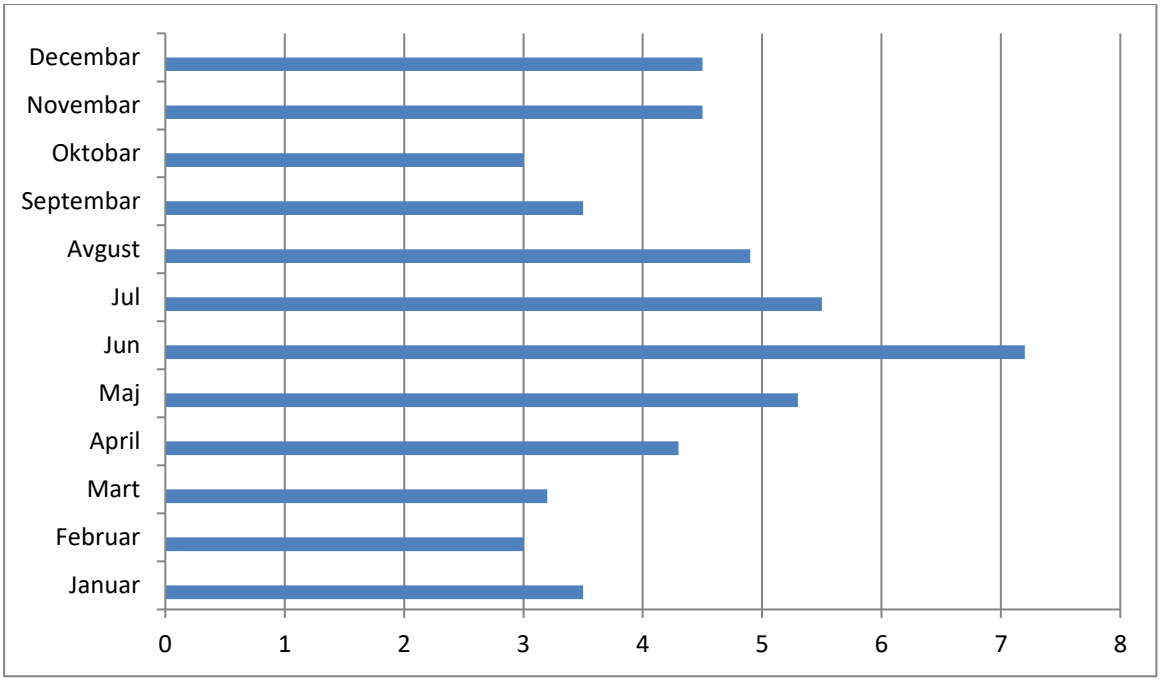
ISSN 2661-2666 (Online) International Scientific Journal Monte (ISJM) DOI: 10.33807/monte.20253282 Volume 10, No.1 (2025): April

The recommendation of experts is to stop the further increase in temperature at 1.5 degrees if possible. The biggest problem is the melting of the glaciers at the North and South Poles, which is a direct danger for a large part of the populated areas that gravitate to the coastal region. Oceans and seas rise, which intensifies the problem of flooding. The water in the oceans becomes more acidic, leading to acidification. Atmospheric precipitation changes its established patterns, and longer dry and longer rain waves occur, which threatens the usual rhythm in the biosphere and agricultural activity. This leads to difficulty in life and survival conditions for numerous plant and animal species, which are more difficult to adapt to the changes that have occurred.

The established rainfall regime in the Republic of Serbia has been drastically disrupted in the last few decades. The summers are extremely dry, with increasingly high average temperatures, while the problem of increasingly intense and abundant precipitation in the spring and autumn months occurs. Winters are mild, without low temperatures and without snowfall.

Graph 2 shows the level of precipitation per month on average over the past three decades:

Graph 2: Precipitation level by month for the period 1994-2024. years:



Among the driest years in the past three decades was the year 2000, when only 223.1 millimeters of precipitation was measured in the territory of the city of Kikinda. The rainiest year was 2014, when 1515.5 millimeters of precipitation was measured on the territory of Zlatibor. Precipitation is one of the most important climatic elements. Due to the atmospheric processes and features of the relief, precipitation is irregularly distributed in time and space on the territory of Serbia. The normal annual rainfall for the whole country is 896 millimeters. Annual amounts of precipitation on average increase with altitude. Drier areas, with

precipitation below 600 millimeters, are located in the northeast of the country, as well as in the South Morava valley and part of Kosovo. The area consisting of the Danube, the valley of the great Morava and its continuation towards Vranje and Dimitrovgrad, have up to 650 millimeters of precipitation during the year. Going east, in the area of the Homoljske Mountains, the annual precipitation amounts reach values close to 800 millimeters. It is similar in the mountainous areas in the southeast of Serbia. The larger and more compact area towards the west and southwest represents the rainiest regions of Serbia. According to the Pešter Plateau and Kopaonik, the values increase up to 1000 millimeters per year, and some mountain peaks in the southwest of Serbia have more abundant precipitation and over 1000 millimeters.

EXTREME WEATHER CONDITIONS

In the spring of 2014, the Balkan region was affected by an extremely strong flood, which was the result of the action of the cyclone "Tamara". The entire Balkan peninsula was affected by this severe weather event, as well as a good part of Central and Southeastern Europe. The effect of the cyclone was on an extremely large area, vertically up to 10 kilometers through the troposphere. The air mass was 100% saturated with a constant increase in humidity with the help of warm air coming from the south and east. This was greatly favored by the geographical and physical specificity of the Balkans. The epicenter of the cyclone was over Serbia and Bosnia and Herzegovina, where the heaviest rainfall occurred in the period from May 13 to 15, 2014. The weakening of precipitation occurs only on May 16 of the same year.

In the entire region, as a result of devastating floods, 86 people lost their lives, 57 in the Republic of Serbia, 27 in Bosnia and Herzegovina, three in Croatia, two in Romania and one in Slovakia (Babić - Mladenović, Kolarov, 2014: 21). In the Republic of Serbia, the most severely affected area is the area of Obrenovac, a populated part of the city of Belgrade, where 8,700 residents had to be evacuated. In addition to Obrenovac, Paraćin, Petrovac na Mlavi, Svilajnac, Smederevo, Smederevska Palanka, Krupanj, Šabac, the towns of Jamena, Morović and Višnjićevo, Sremska Mitrovica, Šid, Trstenik, Kosjerić, Bajina Bašta, Mali Zvornik, Koceljeva and Mali Zvornik were hit by devastating floods.

On the territory of Bosnia and Herzegovina, the Bosna, Drina, Sana, Sava and Vrbasa rivers overflowed, and the worst affected cities were Brčko, Šamac, Maglaj, Doboj, Derventa, Tuzla, Prijedor, Travnik, Janja, Bijeljina, Zenica, Živinice, Vareš. Zavidovići, Ključ, Banja Luka and Čelinac.

In Croatia, it was more critical in the Posavina region and in the towns of Gunja, Račanovac, Rajevo Selo, Bošnjaci, Vrbanja, Drenovica, Strošinci, Đurići, Posavski Podgajci and Soljani. A complete evacuation of the population took place in the towns of Županja, Cerni and Gradište.

CONCLUSION

Climate change contributes to the creation of extreme weather conditions, which threaten people's safety. The paper proved the basic hypothesis that human action contributed to the greatest extent to the occurrence of climate change, and that man's nihilistic attitude towards nature, careless attitude and effort only to satisfy personal egoistic needs is the main cause of climate change, as well as all the accompanying harmful consequences.

The use of fossil fuels is considered one of the biggest problems in environmental pollution and the creation of the greenhouse effect. Although alternative sources of energy are available to man, embodied in bioenergetics, solar energy, energy from wind generators, fossil fuels still have a dominant representation.

It is up to the most developed countries in the world to develop and encourage preventive measures aimed at protecting the environment and reducing the constant increase in temperature to a maximum of 1.5 degrees. The Paris agreement, which established interstate cooperation on a global level in the fight against climate change, the Kyoto Protocol, which sought to reduce greenhouse gas emissions with the aim of reducing them to five percent less than in 1990, should be cited as a positive development. Unfortunately, the Kyoto agreement was not successful and was officially repealed in 2012. The reason should certainly be sought in the economic interests of the great powers, which prevailed over the interests of a healthy and clean environment.

BIBLIOGRAPHY AND SOURCES

- Babić – Mladenović, M; Kolarov, V. (2014) “Pouke poplava 2014. godine”, *Voda i sanitarna tehnika,* Udruženje za tehnologiju vode;
- Belić, D. (2006) “Global Warming and Greenhouse Gases”, *Facta Universitatis,* Niš;
- Dubak, T. (2017) *Klimatske promene i ekološki problemi,* Geografski fakultet Univerziteta u Beogradu;
- Hilje, L. (1984) "Simbiosis: consideraciones terminológicas y evolutivas." *Uniciencia,* Costa Rica.
- Muir, R. (2000) “The new reading the landscape : fieldwork in landscape history”, *University of Exeter Press,* London.