

A Set of Three Technologies Will Save Mankind from Climate Change in the Most Inexpensive Way Possible

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Abstract: This paper formulates a set of three technologies that should deal with the greatest threat to mankind—climate change at the lowest cost. The main technology will be “Sunny Rain”. It considers technology to prevent eruptions of submarine volcanoes at shallow depths and technologies that provide scalable and impactful solutions to reduce carbon emissions across diverse industries as complementary technologies used to reduce cost. A list of submarine volcanoes at shallow depths that are likely to spew waterborne dust into the atmosphere has begun to be created. If the governments of Japan, Italy, and Greece, which have submarine volcanoes at shallow depths (Kiki, Marsili, Columbo), prevent eruptions of these volcanoes, it will provide electricity to these countries, save many of their citizens from death, and save humanity from the greatest threat—climate change—in the most inexpensive way possible!

Key words: Fighting climate change at minimal cost, Sunny Rain, technology to prevent eruptions of submarine volcanoes at shallow depths.

1. Introduction

Current policies cannot keep up with the rate of environmental degradation we are facing today. With current policies none of the environmental goals (e.g. the Paris Agreement on carbon neutrality) will be met. As a result, we are facing a planetary crisis: climate change leading to warming; water shortages (in rivers, for agriculture and for people); the threat of food shortages; pollution.

New policies are needed to achieve an environmentally sustainable world by 2050. UNEP (United Nations Environment Programme) has acknowledged the failure of the old climate change policy and is calling on experts to submit ideas for creating a new climate change policy:

“The United Nations Environment Programme (UNEP) is inviting external experts to participate in the peer review process of the Global Environment Outlook (GEO-7) Second-Order Draft (SOD) and the Summary for Policymakers (SPM) First- Order Draft (FOD)” [1].

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2. Methods and Data

In Refs. [2-7] it was proposed universal multifunctional breakthrough project “Sunny Rain”, which provides a solution to the most pressing problems of mankind, including cooling the air in cities and saving humanity from a climate catastrophe. The amount of greenhouse gases is affected by carbon emissions across diverse industries and submarine volcanoes at shallow depths, which can be affected by special means to reduce the cost of the project. This article discusses a set of technologies that should address the greatest threat to humanity—climate change—with minimal cost.

3. Results

3.1 Volcano Hunga-Tonga-Hunga-Hapai

Eruptions of submarine volcanoes at shallow depths release large amounts of water into the atmosphere, resulting in large amounts of water vapor, which is a greenhouse gas. Consequently, eruptions of submarine volcanoes at shallow depths lead to a dramatic

increase in air temperature. It is hypothesized that the eruption of the submarine volcano Hunga-Tonga-Hunga- Hapai in Polynesia in 2022 led to a sharp increase in air temperature in 2023. It is noted that the magnitude of this eruption in January 2022 was very large, with unprecedented amounts of water vapor, as well as sulfur dioxide and volcanic ash entering the stratosphere. The intense heat turned as much as 150 million tons of seawater into steam. All this could have led to a strong warming of the continental massifs of the northern hemisphere. At the same time, it is possible that the consequences of this eruption will be felt for several more years, in particular, the abnormal heat wave in 2023 may be associated with the eruption of the submarine volcano Hunga-Tonga-Hunga- Hapai [8]. Thus, it is desirable to prevent eruptions of volcanoes located at shallow depths!

3.2 Submarine Volcano Eruption Prevention System

In Refs. [2-7] it was proposed multifunctional breakthrough project “Sunny Rain”, which provides a solution to the most pressing problems of mankind, including cooling the air in cities and saving humanity from a climate catastrophe. But if it is possible to limit the huge flow of volcanoes greenhouse gases by preventing eruptions of submarine volcanoes at shallow depths, it will be much cheaper than using only project “Sunny Rain” in this case.

The paper [5] describes a proposal for a SPEUV (Submarine Volcano Eruption Prevention System) based on a physical model and a developed energy model of volcanoes. A project description is included in the proposal. Based on the proposed model, parameter estimates (SPEUV) are made for the submarine volcano Kikai Caldera. The proposed SPEUV is a scientific and technological breakthrough that can save most Japanese citizens from death. SPEUV can generate a large amount of clean electricity. This article provides information for researchers, governments and companies about the possibility of creating SPEUV.

3.3 Kikai Caldera Underwater Volcano

There are significantly more volcanoes on the ocean floor than on the surface—more than 30,000—and most of them are poorly explored. Most of the underwater volcanoes are located at the junctions of tectonic plates near the so-called mid-ocean ridges. Thus, along with the Kikai Caldera underwater volcano, there are underwater volcanos at shallow depths that pose both a volcanic hazard and a hazard to mankind by releasing water vapor into the atmosphere and that require attention similar to the Kikai Caldera underwater volcano; we will point out two underwater volcanos found at shallow depths.

3.4 Marsili Volcano

Marsili volcano hides underwater 175 km south of Naples. Its height above the sea floor is 3,000 m, its length is 70 km and its width is 30 km, from the very top of the huge underwater mountain to the surface of the Tyrrhenian Sea is another 500 m. The volcanic activity of Marsili (if part of the volcano collapses) potentially threatens to generate a tsunami of enormous size, and a wave 20-30 m high could hit the shores of Calabria and Sicily. Marsili is one of many in an arc of volcanoes off the northern coast of Sicily and the west coast of southern Italy. The result of some of these volcanoes is the Aeolian (Lipari) Islands. And for each of these islands there are a dozen volcanoes hiding under water [9].

3.5 Volcano Columbo

Volcanologists are concerned about the ever-increasing volume of magma that is accumulating in the magma chamber located at a depth of about 3 km at the submarine volcano Columbo near Santorini. Colombo, or Columbo, is an active underwater volcano located 6.5 km northeast of the island of Santorini and belongs to the volcanic arc of the South Aegean Sea. Today, the Colombo volcano is 280 m high (compared to the surrounding seabed) and about 18 m below sea level. Its crater is about 3 km in diameter and 512 m deep.

Hydrothermal wells, sources of hot water with temperatures up to 220 °C, have been found around the volcano. The results allowed the researchers to conclude, “The current state of the magma chamber indicates that an eruption with potentially significant consequences is possible in the future (although not imminent).” [10].

4. Conclusions

4.1. Complex of Three Technologies Will Save Mankind from Climate Changes

It is hypothesized that the eruption of the submarine volcano Hunga in Polynesia in 2022 led to a sharp increase in air temperature in 2023. Using the technology “Sunny Rain” to lower the temperature would require large resources. Thus, it is desirable to prevent eruptions of volcanoes located at shallow depths! The paper [5] describes a proposal for a submarine volcano eruption prevention system (SPEUV), which is used to prevent the Kikai underwater volcano. Two other underwater volcanos at shallow depths have been found in the literature that pose both a volcanic hazard and a hazard to mankind by releasing water vapor into the atmosphere and that require attention similar to the Kikai underwater volcano. Three technologies are to be included in a set of technologies with minimal cost to deal with the greatest threat to mankind—climate change. The main technology will be “Sunny Rain”; auxiliary technologies, allowing reducing the cost, will be prevention eruptions of submarine volcanoes at shallow depths and technologies that provide scalable and impactful solutions to reduce carbon emissions across diverse industries. Therefore, it is necessary to create a new conference similar to the Paris Climate Change Conference of 2015, a conference (water, food, urban cooling and climate, firefighting, ecology and health, reduce carbon emissions across diverse industries, volcanoes) that will accelerate air cooling for each country. We hope that this complex of three different technologies

1. Technology “Sunny Rain”;
2. Technologies that provide scalable and impactful solutions to reduce carbon emissions across diverse industries;
3. Prevention eruptions of submarine volcanoes at shallow depths) will save mankind from the greatest threat—climate changes in the most inexpensive way!

4.2 If the Governments of Japan, Italy and Greece

If the governments of Japan, Italy and Greece, which have submarine volcanoes at shallow depths (Kiki, Marsili, Columbo), prevent eruptions of these volcanoes (see technology in Ref. [5]), it will provide electricity to these countries, save many of their citizens from death and save mankind from the greatest threat—climate changes in the most inexpensive way!

Conflict of Interest

I, the author, declare that there is no conflict of interest regarding the publication of this article.

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