UDC 553. 104, 107, 504. 4
SCOPUS CODE 1900
https://doi.org/10.36073/1512-0996-2025-3-190-195

The Problem of Planetary Warming and the Development of Recommendations for Possible Mitigation of Related Cataclysms

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Abstract.

The article analyzes the causes of planetary warming. Although most scientists of the world explain these natural phenomena by astronomical reasons, and the author does not deny them, the main reason he considers human intervention in the development of the Earth. The fact is that the Earth "breathes", which is explained by the huge temperature difference between the liquid mantle of the planet and the surface of the Earth. This explains the emergence of "warm fields" and "hot spots" in many places on Earth.If its "breathing" is interfered with, the Earth will react with volcanoes (which the author calls "exhaust valves"). It is logical that the thermal energy that has reached a critical level and accumulated in the lithosphere should burst outward, which is manifested in natural phenomena. Thus, the author considers the "reservation" of the Earth as the main cause of catastrophes. The author suggests a number of ways to mitigate the consequences of cataclysms, including "taming" volcanoes by transferring them to solfataric-fumarolic state, for which it is necessary to drill several wells around them, which, in addition to the function of "breathing" the Earth, will allow to clarify the geostratigraphic section, make correlations, use steam and thermal water (if not, with recirculation) for heating residential buildings and greenhouses. It is also possible to intersect new mineral deposits..

Keywords: Cataclysms; Planetary; Volcano; Warming.

Introduction

Most scientists consider astronomical events to be the cause of planetary warming, while others consider increased carbon dioxide in the atmosphere (the Alatra movement, Khendai, etc.).

We do not deny such events, but we consider human interference in the Earth's development to be

the main cause of warming and related catastrophes. Cataclysms of 2023 covered not only Georgia (rivers Vere, Shovi), but practically the whole world, so the thoughts of geologists and scientists of different fields of science are focused on the problem of what caused catastrophes of such scale. Of course, we had no right not to think about the causes of such events. Since we are dealing with large-scale events, the opinion of almost all researchers is unanimous in the view that the cause of catastrophes is planetary warming. However, there is still no unambiguous answer to the question of what exactly caused it.

Let's not forget that the Earth is developing on its own laws and no one has the right to interfere, much less violate them.

The point is that the Earth “breathes” like any other organism, and this “breathing” (mainly in the form of emanations) is caused by a huge temperature difference - deep and surface.

If we interfere with its “breathing”, the Earth will respond with volcanic eruptions (which we called a “exhaust valve” in our 2018 Nobel Prize submission to Oslo) and other natural disasters.

In the aforementioned work entitled “Saving Our Common Home—Earth,” we put forward completely different, in our opinion, scientifically substantiated causes of planetary-scale warming events and argue that the recently frequent cataclysms are mainly caused by human activity. It would not be amiss to quote R. Horn’s statement that the oceans also “breathe” [1].

Main Part

In ancient times, heat exchange on our planet was relatively balanced. It is noteworthy that there is no less water in the Earth’s mantle than in the oceans and seas. Superheated steam and emanations are trying to rise from the depths of the Earth to the surface, which we observe through the action of geysers in Yellowstone Park, in the form of mineralized hydrothermal vents (Kunashir Island, Tbilisi hydrothermal waters), and periodically through volcanic events. That is, what causes the eruption of magma. Of course, it is logical that the thermal energy that has reached a critical level, which accumulates at the bottom of the lithospheric crust, must be erupted. This is about the intrusion of the viscous substance of the asthenosphere from the Earth's mantle layer into the "weak" structures of the Earth's crust in the form of diapirs, which causes anomalously high geothermal gradients in these parts of the crust. Naturally, in such a case, a volcano (or "exhaust valve") is triggered. By the way, the triggering of volcanoes, or "exhaust valves" as we call them, according to scientists D. Wilson, W. Morgan, R. Larson and P. Olson, is associated with the formation of plumes and superplumes in the mantle. Their action leads to the development of cataclysms on the Earth's surface.

Mantle diapirism is observed predominantly in the regions of large trenches (Anadarko Trench in North America, Mariana Trench in the Pacific Ocean, Black Sea, South Caspian and other trenchys within the Mediterranean fold belt). Scientists consider such fragments to be relics of the Tethys Ocean [2]. It is very important that hundreds or more of such “hot fields and hot spots” are observed in many places on Earth. There is no doubt that in such regions there is an intrusion of the mantle viscous substance into the Earth’s surface (mantle diapirism). The results of geological and geophysical studies [3] show that high values of geothermal gradients are associated with the increased heat flows associated with the mentioned mantle anomalies (mantle diapirs).

According to the author, the warming of the Earth's climate, melting of mountain glaciers and other anomalous events are associated with such natural phenomena.

Undoubtedly, for many years, under concreted surface areas (civil construction and engineering structures, asphalted highways, pedestals), much of the Earth's

other "armored" and critical thermal energy finds weak spots on the surface and generates catastrophic events - earthquakes, volcanic activation, etc.

Thus, in the first part of the work, the author tried to explain the causes of planetary warming, the main of which is the "reservation" of the Earth's surface, that is, the unstoppable "taking away" of its surface. In addition to those scientists who try to explain warming by astronomical events alone and the fact that mankind is powerless to prevent them, the author also sees (and primarily) factors of civilization and believes that mitigating their effects is feasible. The author tried to explain the disasters directly related to the mountains and mountain rivers that occurred in Georgia in 2023 (River Vere, Shovi resort, Guria) [4,5,6]. The author cites the plight of mountaineers when the weather suddenly changes on a snowy mountain section and they are forced to temporarily stop climbing the mountain, but due to the lack of a tent, they build a primitive tent "igloo" from snow. In such a "tent" heat is generated at the expense of human breathing (biological warming).

The example of the "igloo" is a clear analogy with the source of rivers: how snow melts on a mountain slope (Fig. 1). Naturally, every major global event has its own history. Therefore, in order to explain the cause of warming and make its "diagnosis", we must try to decipher the initial stage of its development. In this regard, the mountains, according to the author, have the most clear information, since most cataclysmic events are associated precisely with mountains and their snow cover.

Regardless of the type of rock a mountain is made of (granitoids, basaltoids, etc.), they contain pores (closed, open, or both) and microscopic cracks in varying percentages. "Long ago" (perhaps in ancient times) the first rain filled the cracks and pores and froze.

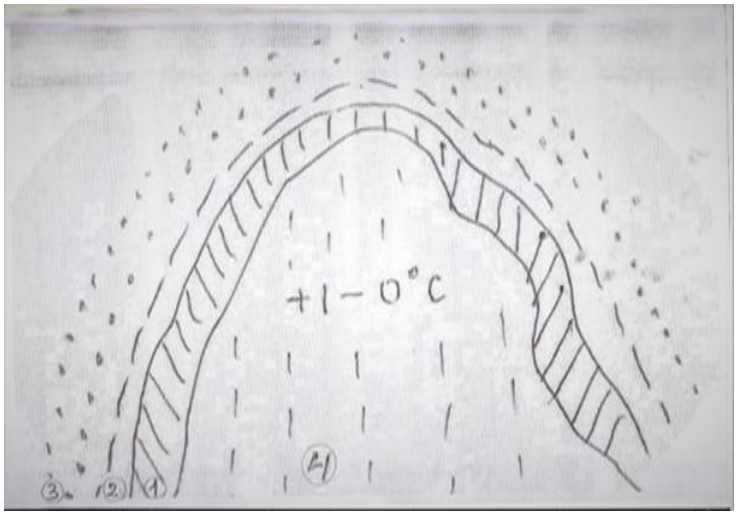

Fig. 1. 1. (i.e. old frozen snow); 2. Compacted snow ("Firn"); 3. Fresh, loose snow; 4. Warm emanations.

Thus, already at the first rain, the mountain was "reserved" with ice. Such "first ice" (and no longer snow) practically became an integral part of the mountain, since it cemented the outer mass of the mountain. The snow that came later has two structures - its lower part, not very thick, adhering to the ice, has a compacted structure ("firn" snow), while the upper cover is loose and, in case of excess mass, is subject to avalanche formation under conditions of critical slope of the mountain. The intrusion of warm emanations into the

mountain through mountain cracks, heating the "first" layer of ice, causes it to slide down the mountain, which is the main reason for the cataclysm, since the river bed cannot provide for the passage of a suddenly increased water flow in such a short time. In regions where "hot spots" and a high geothermal gradient are observed, the temperature of the inner part of the snow in the mountains is within 0° - 1°C ("igloo effect"), which leads to the melting of the inner layer (ice).

Mount Elbrus		Kazbegi	
°C	km	°C	km
50	1	34	2
100	2	68	4
150	3	102	6
200	4	136	8
250	5	170	10

Fig. 2. The "hot depths" of Elbrus and Kazbegi.

According to monitoring data in similar places [1], in the upper part of the Earth (in particular, in the vicinity of the glacier) at a depth of 10 km, the temperature is recorded as 170°C, and at a depth of 5 km on the Elbrus meridian - 250°C (the Black Sea level is taken as 0 km). For this reason, Mount Kazbegi is included in the list of active volcanoes [3].

Conclusion

The majority of scientists consider astronomical events to be the cause of global warming and argue that similar events have occurred on Earth before (with periodic shifts of the Earth's axis, glaciations, etc.). We do not exclude such events, but we are powerless against them today; Unlike them, we consider humanity to be the cause of the events that have developed in the world in recent years, which has caused great damage to our common home - the Earth - in the process of long-term development. We consider their correction, if not complete, at least partial, to be realistic. As we all know, the past year was very difficult due to the cataclysms that occurred in Racha. Naturally, we had no right not to study the mentioned events, conduct an analysis and develop recommendations in order to prevent similar cataclysms in the future not only in Racha, but also in other “hot spots” (Vere river, Heroes' Square, etc.); As for prevention, first of all, it is necessary to monitor the “hot fields” (Adjara, Guria, Racha, Svaneti, Lechkhumi, mountainous Kakheti, Tusheti, Khevsureti, Kazbegi, Pshavi, Juta, Chiukhi, Jvari Pass, Abudelauri, etc.) in order to detect the possible occurrence of catastrophic events through preliminary observations and take appropriate measures (warning the population, evacuation if necessary, etc.) to mitigate them; We consider one of the real measures to be the triggering of “artificial” avalanches in snowy mountains with appropriate cannons (similar to those used in Kakheti against hail), only in certain “portions” so that a large mass of snow cover does not fall at once. We must not forget that the snow from glaciers feeds rivers; Landslides are a separate subject of study. To prevent them, it is necessary to take into account the lithological composition of rivers or dry canyons, ravines, narrow gorges and floodplains (i.e., to study both the rocks of their structure and the conditions of the slopes of the banks and terraces (according to Professors M.

Protodziakonov and Grigol Khmaladze); Since we have mentioned volcanoes rather mildly in the text, we are obliged to mention their possible taming. Deep wells should be drilled around volcanoes, which, in addition to the function of "breathing" the Earth, will make it possible to specify the geostratigraphic section at the relevant points, make correlations and use steam or thermal water (if not, with recirculation) for heating residential buildings and greenhouses. It is also possible to cross new mineral deposits; By the way, many volcanoes around the world (Yellowstone in America, Mendeleevo and Tolbachik in Kamchatka, etc.) are in such a natural solfataric-fumarolic state state.

References

1. Buachidze, G. I., & Gamkrelidze, I. P. (2004). *Thermal field and neotectonics of Georgia*. Trudy GIN AN Georgia, New Series, 119, 838–839.
2. Gugunava, G. E., Sholpo, V. N., Gamkrelidze, I. P., et al. (2004). On the issue of distribution of thermal fields in the Caucasus and in the waters of the Black and Caspian Seas. *Trudy GIN AN Georgia, New Series*, 119, 834–838.
3. Horn, R. M. (1972). *Marine chemistry: Structure of water and chemistry of the hydrosphere* (389 p.). Moscow: Mir. (Original work published by Sciences of the Earth)
4. Koronovsky, N. V., & Demina, L. I. (2006). Disappeared Pliocene volcanoes of the Main Caucasian Range and the grand explosion of Kazbeki at the beginning of the Late Pleistocene (North Caucasus). In *Problematic issues of geodynamics, petrology and metallogeny of the Caucasus: Proceedings dedicated to the 100th anniversary of A.A. Azizbekov* (pp. 92–104). Baku.
5. Magalashvili, G. (2017, August 1). *Another version of warming* (Depositary receipt No. 7051). Sakpatenti. Tbilisi.
6. Magalashvili, G. (2023, March 11). *Deciphering the causes of planetary warming* (Depositary certificate No. 9195). Sakpatenti. Tbilisi.
7. Magalashvili, G. (2023, September 11). The causes of the cataclysm in Racha and the possibilities of preventing similar events. *Republic of Georgia*, (103), 11.
8. Magalashvili, G. (2023, October 9). Again the problems of the Vere Gorge and Heroes' Square. *Republic of Georgia*, (113/9645), 5–6.

UDC 553. 104, 107, 504. 4
SCOPUS CODE 1900
https://doi.org/10.36073/1512-0996-2025-3-190-195

პლანეტარული დათბობის პრობლემა და მასთან დაკავშირებული კატაკლიზმების შესაძლო შერბილების რეკომენდაციების შემუშავება

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ანოტაცია. მიუხედავად იმისა, რომ თანამედროვე მეცნიერული მოსაზრებები ბუნებრივ კლიმატურ ცვლილებებს ასტრონომიული ფაქტორებით ხსნის (რასაც ავტორი არ უარყოფს), პლანეტარული დათბობის მთავარ გამომწვევად მიიჩნევა ადამიანის ჩარევა დედამიწის განვითარების პროცესში. სტატიაში განიხილება პლანეტარული გათბობის გამომწვევი ძირითადი მიზეზები.

განსახილველია დედამიწის ე.წ. "სუნთქვის" ფენომენი, რომელიც გამოწვეულია თხევად მანტიასა და დედამიწის ზედაპირს შორის არსებული ტემპერატურული სხვაობით. აღნიშნული დინამიკა განაპირობებს „თბილი ველებისა“ და „ცხელი წერტილების“ ჩამოყალიბებას. ამ ბუნებრივ პროცესში ჩარევა იწვევს ვულკანურ აქტივობას, რაც განიხილება როგორც ლითოსფეროში დაგროვილი თერმული ენერგიის ზედაპირზე გამოღწევის მექანიზმი.

დასკვნის სახით წარმოდგენილია მოსაზრება, რომ დედამიწის ზედაპირის ინტენსიური ათვისება და მისი ბუნებრივი ფუნქციების შეზღუდვა არის კლიმატური და გეოლოგიური კატასტროფების გააქტიურების ერთ-ერთი მთავარი მიზეზი.

მოცემულია რეკომენდაციები კატაკლიზმების შედეგების შესამსუბუქებლად, მათ შორის — ვულკანების აქტივობის მართვა სოლფატარულ-ფუმაროლურ ფაზაში მათი გადაყვანის გზით. ეს გულისხმობს ვულკანების ირგვლივ სპეციალური ჭაბურღილების მოწყობას, რაც უზრუნველყოფს როგორც დედამიწის „სუნთქვის“ შენარჩუნებას, ისე გეოსტრატიგრაფიული მონაცემების დაზუსტებას, თერმული რესურსების (ორთქლი და თბილი წყლები) ენერგეტიკულ და საყოფაცხოვრებო მიზნებისთვის გამოყენებას და პოტენციურად — ახალი წიაღისეული რესურსების აღმოჩენას.

საკვანძო სიტყვები: გარემოს დაცვა; გეოთერმული ენერგია; ვულკანები; კატაკლიზმები; პლანეტარული დათბობა.

The date of review 18.06.2025
The date of submission 23.06.2025
Signed for publishing 25.09.2025