Report

CLIMATE CHANGE AND ITS IMPACT ON NATURAL DISASTERS

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Report

Over the last 30 years, there has been an unprecedented and synchronous increase in climatic changes, the intensity of anomalies, and extreme events across all layers of the Earth and its geophysical parameters. The progression of climate and geodynamic changes tends to grow exponentially. A comprehensive analysis of publicly available scientific data has identified that both anthropogenic factors and the processes of astronomical cyclicity, which affect the entire Solar System, play a significant role in these climate changes. The influence of external astronomical cycles is confirmed by the scientific fact that similar climatic, geodynamic, and magnetic anomalies have been observed on other planets in the Solar System and their moons, in sync with those on Earth.

1. Anthropogenic Factors of Climate Change

Humanity is currently facing one of the most severe environmental threats on Earth — the increased concentration of greenhouse gasses in the atmosphere, which has a detrimental impact on climate change. One of the main contributors to anthropogenic influence is carbon dioxide (CO_2), the concentration of which has reached record levels in Earth's atmosphere. Since the mid-19th century, there has been a steady increase in the concentration of carbon dioxide in the atmosphere. According to the latest data, CO_2 levels in 2022 were one and a half times higher than pre-industrial levels[1] and have been above 0.04% of the entire atmosphere since 2015. Anthropogenic activity not only increases the concentration of CO_2 in the atmosphere but also of the greenhouse gas methane (CH_4). The melting of glaciers and permafrost exacerbates this effect, further increasing the concentration of methane in the atmosphere. This is especially dangerous, as methane released directly into the atmosphere is 80 times more harmful than CO_2[2], according to UNEP data.

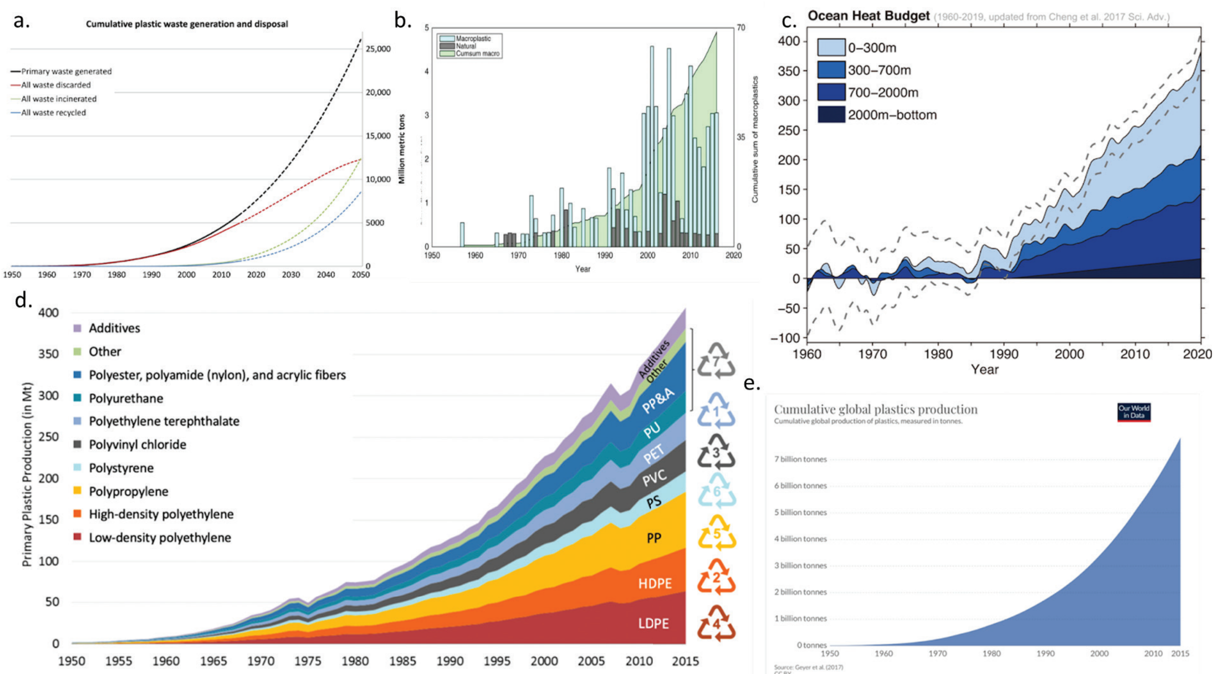

Figure 1

Diagrams of changes in ocean temperature from 1960-2019 and their comparison with the diagrams of growth in the production of synthetic polymers, their use in various sectors of economy, and disposal of plastic waste in the ocean (from various sources).

a. Cumulative plastic waste generation and disposal

Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. Science Advances, 3(7). https://doi.org/10.1126/sciadv.1700782

b. Cumulative sum of microplastic in the ocean and annual counts

Ostle, C., Thompson, R. C., Broughton, D., Gregory, L., Wootton, M., & Johns, D. G. (2019). The rise in ocean plastics evidenced from a 60-year time series. Nature Communications, 10(1622). https://doi.org/10.1038/s41467-019-09506-1

[1] Carbon dioxide is now more than 50% higher than pre-industrial levels. www.noaa.gov. (As of May 1, 2024)

[2] UN News. (2021, October). Обсерватория по сбору данных о выбросах метана. Retrieved from https://news.un.org/ru/story/2021/10/1412872

c. **Ocean heat budget from 1960 to 2019** (Purkey and Johnson, 2010; updated from Cheng et al., 2017)
Cheng, L., Abraham, J., Zhu, J., Trenberth, K. E., Fasullo, J., Boyer, T., Locarnini, R., Zhang, B., Yu, F., Wan, L., Chen, X., Song, X., Liu, Y., & Mann, M. E. (2020). Record-Setting Ocean Warmth Continued in 2019. Advances in Atmospheric Sciences, 37, 137–142. https://doi.org/10.1007/s00376-020-9283-7
d. **Global primary plastic production by polymer type**
Geyer, R., Jambeck, J. R., & Law, K. L. (2017). Production, use, and fate of all plastics ever made. Science Advances, 3(7). https://doi.org/10.1126/sciadv.1700782
e. **Cumulative global production of plastics since 1950**
Data source: Plastic Marine Pollution Global Dataset

The ocean plays a crucial role in the planet's thermoregulation, and in the past, it served as the primary mechanism for regulating the Earth's heat balance, dissipating excess heat from the planet's interior into the atmosphere and subsequently into outer space. However, as a result of human activity, the ocean's heat conductivity has been significantly disrupted. This is due to increased pollution of its waters with oil products and synthetic polymers. The world ocean has never been so heavily polluted before. As a result of oil extraction, transportation and related accidents, up to 30 million tons of hydrocarbons[3] enter the ocean annually. The overall area of "plastic islands" of garbage on the ocean's surface is nearly equivalent to the combined land area of the United States and Australia. However, this constitutes only 1% of total pollution, as 99% of plastic is dispersed within the ocean water[4].

As a result of pollution, the ocean has become less effective at dissipating heat from the lithospheric plates and has also started releasing more CO_2 into the atmosphere. In other words, the additional release of CO_2 by the ocean itself is also caused by anthropogenic factors, such as pollution from microplastics, which continue to break down in the ocean due to its warming and acidification. Even if humanity were to cease all industrial activity today and disappear, ocean heating and the resulting geodynamic destruction of the planet would not stop. By our actions, we've triggered a global process that will continue to impact our planet in the future.

Currently, there is an extreme rise in ocean surface temperatures (Figure 2). The increase in ocean temperature leads to intense evaporation (Figure 3) and heat transfer to the atmosphere (Figure 4), which results in abnormal precipitation. This causes a rise in extreme floods, while other regions suffer from droughts due to moisture retention in the air. The higher the air temperature, the more moisture it can hold. Higher temperatures and droughts dry out vegetation, making it more prone to ignition. This increases the risk of wildfires, including those fueled by highly flammable methane escaping from the Earth's interior[5] through cracks and faults. Warm, humid air also intensifies tropical cyclones, boosting their destructive power.

These processes are interconnected and amplify each other, leading to an increase in the frequency and intensity of extreme weather events worldwide.

[3]Alexeev, G. V., Borovkov, M. I., & Titova, N. E. (2018). Sovremennye sredstva dlja ochistki vody ot maslo-zhirovyh jemul'sij i nefteproduktov. [Modern means of purifying water from oil-fat emulsions and petroleum products]. Colloquium-journal, 7(18), 4-6
[4]Lebreton, L., Egger, M., & Slat, B. (2019). A global mass budget for positively buoyant macroplastic debris in the ocean. Scientific Reports, 9, 12922. https://doi.org/10.1038/s41598-019-49413-5
[5]Lushvin, P. (2018). Natural Plain Fires and How to Minimize Them. Presentation at the 26th meeting of the All-Russian Interdisciplinary Seminar-Conference of the Geological and Geographical Faculties of Moscow State University "Planet Earth System," January 30 — February 2, 2018.

Abnormal Ocean Surface Warming

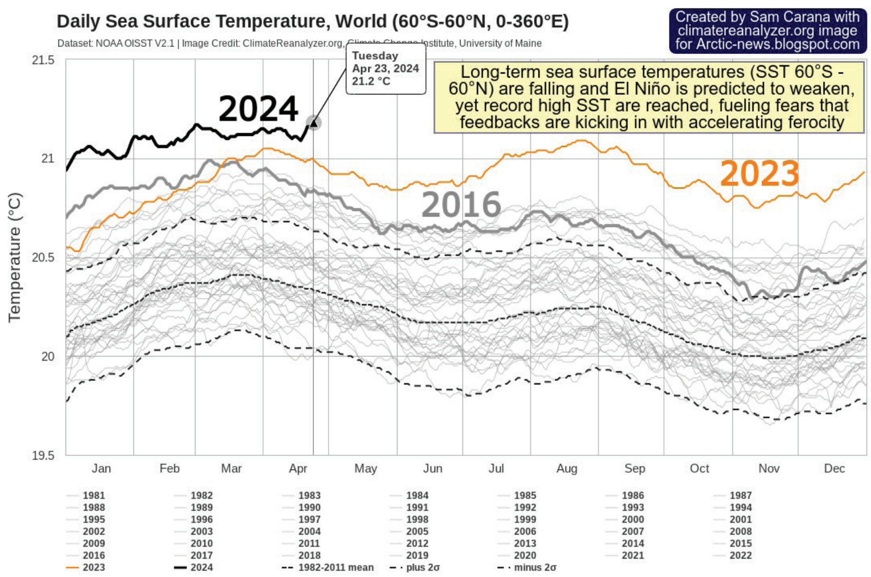

Figure 2

Highest Ocean Temperatures on Record, Daily Average Sea Surface Temperature, 1981-2024.

Data source: Dataset NOAA OISST V2.1 | Image Credit: ClimateReanalyzer.org, Climate Change Institute, University of Maine, Dataset. NOAA OISST

The graph illustrates the extreme anomaly in ocean warming trends by month compared to previous years (the orange curve represents 2023). The year 2024 is already surpassing all the records set in 2023.

Abnormal Increase in Humidity and Temperatures Over the Ocean

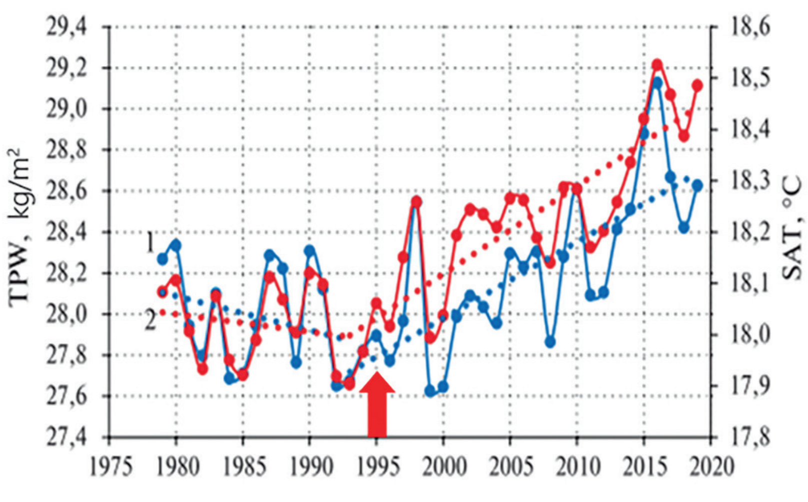

Figure 3

The interannual variation of atmospheric moisture content (1) in kg/m^2 and air temperature (2) in °C over the World Ocean from 1979 to 2019.

(Source: Malinin V. N. & Vaynovsky P. A. (2021). Trends of moisture exchange components in the ocean-atmosphere system under global warming conditions", Reanalysis-2. Sovremennye problemy distancionnogo zondirovaniâ Zemli iz kosmosa [Current problems in remote sensing of the Earth from space] 18(3), 9-25.
DOI: 10.21046/2070–7401–2021–18–3–9–25)

The graph illustrates the increase in ocean evaporation and the synchronous rise in temperatures over the ocean since 1995. That same year marked significant changes within Earth's interior, such as: a sudden shift of the north magnetic pole, a sharp displacement of the planet's rotational axis, an increase in the number of earthquakes on the ocean floor, and a rise in deep-focus earthquakes. The rise in humidity leads to an increase in the frequency and intensity of floods, typhoons, and other abnormal weather events.

Exponential Heating of Atmospheric Temperatures

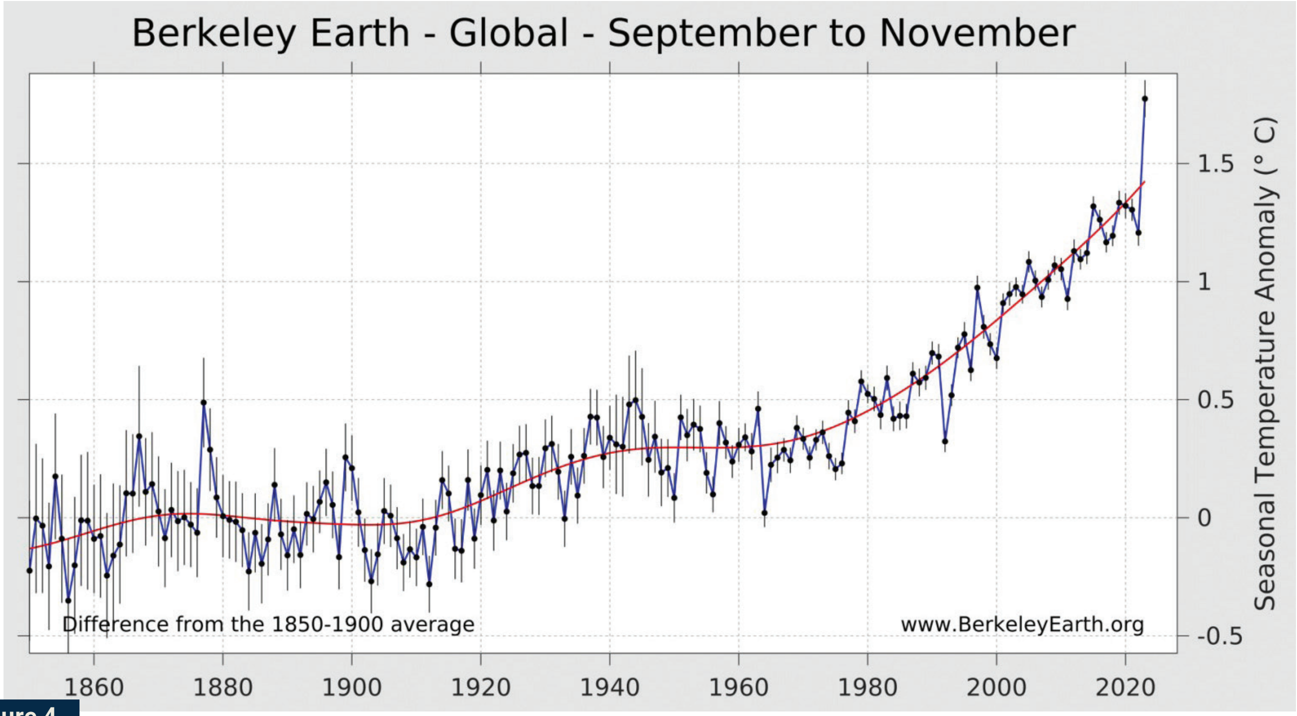

Figure 4

From September to November 2023, the warming on Earth was exceptional.
It was the largest temperature anomaly ever observed, but also the largest deviation from the long-term trend in at least 100 years.

In 2023, temperature extremes became even more pronounced, as evidenced by the magnitude of changes in the average temperature from September to November. During this period, temperatures were the highest on record across 32% of the land surface.

The anomalous increase in atmospheric and ocean temperatures indicates an unprecedented reduction in the oceans' ability to absorb heat from the Earth's interior, which is critically necessary in the phase of geodynamic activity that occurs during cyclical astronomical processes. Let's consider the factors contributing to geodynamic activation and changes in geophysical parameters of the Earth.

2. Factors of Geodynamic Activation and Changes in Earth's Geophysical Parameters

2.1. Changes in Earth's geophysical parameters. Anomalous acceleration of Earth's rotation since 1995 and sudden shift and acceleration of the drift of the planet's rotation axis in 1995

Prior to 1995, scientists observed a slowing down of Earth's rotation. However, starting from 1995, there was a sudden and abrupt acceleration in the rotation of the planet, as recorded by the Earth Orientation Center of the Paris Observatory (see Figure 5).

The red lines on the graph represent trend lines, showing the rate at which days are getting shorter. For instance, the left line is less steep, while the right line, representing acceleration from 2016, is nearly vertical, meaning that days are getting significantly shorter, indicating a faster planet rotation.

In 1995, there were also anomalous changes in the Earth's rotation axis. It abruptly shifted direction of its drift, and its speed of movement increased 17 times. According to research, the breakpoint of polar drift in the residual is set in October 1995[6] (Figure 6).

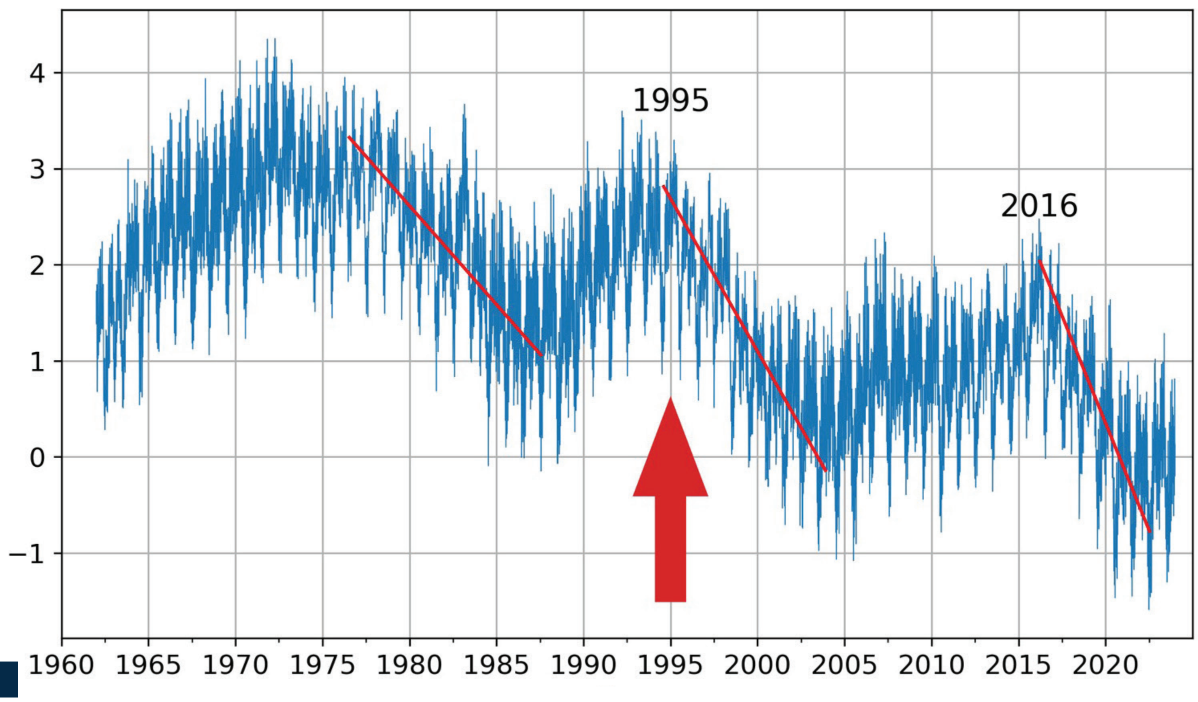

Figure 5

Deviation in the length of day in milliseconds from 1962 to 2023.
Data source: IERS Earth Orientation Center of the Paris Observatory. Length of day — Earth Orientation Parameters:
https://datacenter.iers.org/singlePlot.php?plotname=EOPC04_14_62-NOW_IAU1980-LOD&id=223

[6]Deng, S., Liu, S., Mo, X., Jiang, L., & Bauer-Gottwein, P. (2021). Polar Drift in the 1990s Explained by Terrestrial Water Storage Changes. Geophysical Research Letters, 48(7). https://doi.org/10.1029/2020gl092114

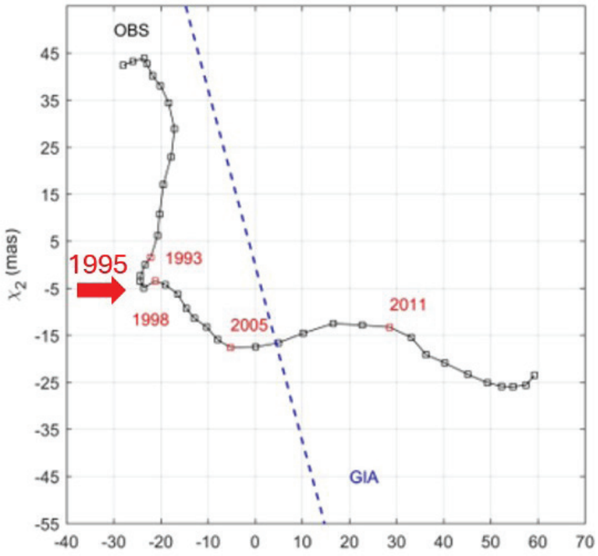

Figure 6

Long-term trajectory of the observed excitation after removing the annual and the Chandler periods by the moving average method (black line with squares) and the direction of the polar drift due to GIA (blue dashed line). The size of the moving average subset is set to 84 months, which is the lowest common multiple of 12 months (annual cycle) and 14 months (the Chandler period), according to the research by Liu et al. (2017).

2.2. Changes in geomagnetic parameters of the Earth's Core. Sharp acceleration of the North Magnetic Pole drift in 1995. Decrease in the magnetic field Intensity, increase in the size of magnetic anomalies

In 1995, the movement of the North Magnetic Pole, which had previously been drifting at 10 km/year, suddenly increased its speed to 55 km/year and changed its trajectory to the Taimyr Peninsula[7] in Siberia (see Figure 7). Such a rapid movement of the magnetic pole has not been recorded in the last 10,000 years[8].

Over the past 50 years, the Earth's magnetic field has significantly weakened[9]. Since the 1990s, the intensity of the magnetic field has decreased by 10–15%, and in recent years, this decline has noticeably accelerated. This represents the most substantial weakening of the magnetic field in the last 12,000–13,000 years. The weakening of the magnetic field is not uniform. In certain areas, such as the South Atlantic Magnetic Anomaly, the magnetic field has weakened by as much as 30%.

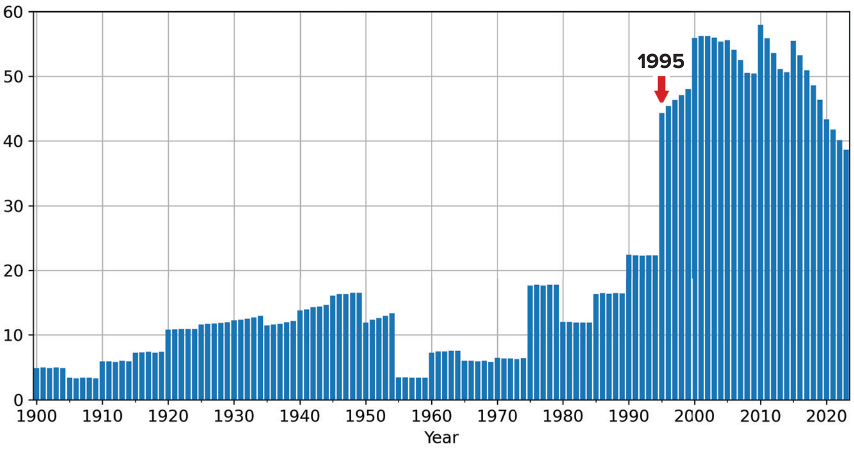

Figure 7

The drift speed of the North Magnetic Pole, km/year.
Source: NOAA data on the position of the North magnetic pole: https://www.ngdc.noaa.gov/geomag/data/poles/NP.xy

[7]Dyachenko, A. I. (2003). Magnetic Poles of the Earth. Moscow: MCCME. p. 48.
[8]Androsova, N. K., Baranova, T. I., & Semykina D.V. (2020). Geological past and present of the Earth's magnetic poles. EARTH SCIENCES/ "Colloquium-journal", 5(57). DOI:10.24411/2520-6990-2020-11388
[9]Tarasov, L. V. (2012) Earth magnetism: A textbook. Dolgoprudny: Intellect Publishing House. p. 184.

2.3. Core. In 1997-1998, there was a sudden displacement of the Earth's Core along the line from West Antarctica to Western Siberia, including the Taimyr Peninsula.

In 1997-1998, by studying the Earth's center of mass via satellite, scientists recorded an unparalleled phenomenon — a displacement of the Earth's inner core[10]. As a result, the planet's core shifted northward, along the line from West Antarctica to Western Siberia, towards the Taimyr Peninsula, Russia (Figure 8).

At the same time, four different research teams independently recorded abnormal changes in various geophysical parameters of the Earth, evidencing this event. According to the satellite data, a team of authors from Moscow State University and the Institute of Physics of the Earth of the Russian Academy of Sciences registered a displacement in the Earth's center of mass in 1998[11] (Figure 9).

During the same period, the International Earth Rotation Service (IERS) recorded a sharp acceleration of the planet's rotation. At the same time, at the Medicina station in Italy, scientists recorded a sudden shift in gravity[12]. Simultaneously, a sharp change in the Earth's shape[13] was observed, registered using a laser rangefinder system from US satellites.The planet began to expand abnormally in the equator area, although before, the trend was the opposite.

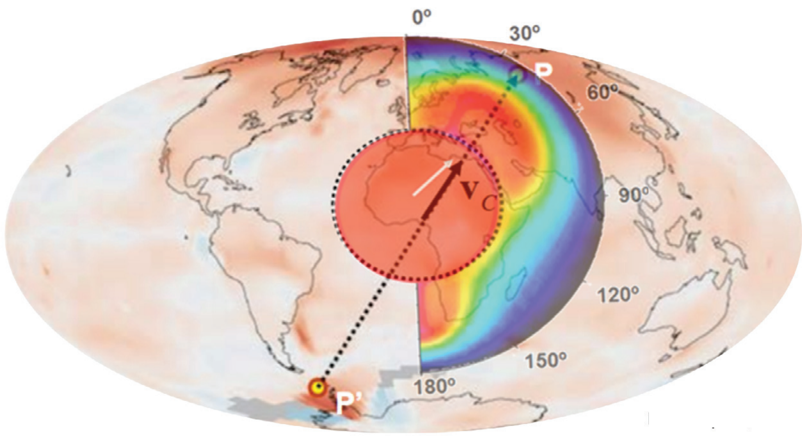

Figure 8

Displacement of the Core in 1997-1998 and Thermal Waves in Magma Caused by the Core Shift. (Barkin, Yu. V.)
The map depicts the displacement vector of the inner core from West Antarctica to Western Siberia, towards the Taimyr Peninsula. The scheme is overlaid on a map of atmospheric thermal anomalies.
Source: Geophysical implications of relative displacements and oscillations of the Earth's core and mantle. Presentation by Yu.V. Barkin, Moscow, IFZ, OMTS. September 16, 2014.

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[10] Barkin, Y. V. (2011). Sinhronnye skachki aktivnosti prirodnyh planetarnyh processov v 1997-1998 gg. i ih edinyj mekhanizm [Synchronous spikes in the activity of natural planetary processes in 1997-1998 and their unified mechanism]. in Geologiya morej i okeanov: Materialy XIX Mezhdunarodnoj nauchnoj konferencii po morskoj geologii [Geology of Seas and Oceans: Materials of the XIX International Scientific Conference on Marine Geology]. Moscow: GEOS, 5, 28-32

Smolkov, G. Ya. (2018). Exposure of the solar system and the earth to external influences. Physics & Astronomy International Journal, 2(4), 310–321. https://doi.org/10.15406/paij.2018.02.00104

[11] Zotov, L. V., Barkin, Y. V. & Lyubushin, A. A. (2009). Dvizhenie geocentra i ego geodinamika [The motion of the geocenter and its geodynamics]. In 3rd. conf. Space geodynamics and modeling of global geodynamic processes, Novosibirsk, September 22-26, 2009, Siberian Branch of the Russian Academy of Sciences. (pp. 98-101). Novosibirsk: Geo.

[12] Romagnoli, C., Zerbini, S., Lago, L., Richter, B., Simon, D., Domenichini, F., Elmi, C., & Ghirotti, M. (2003). Influence of soil consolidation and thermal expansion effects on height and gravity variations. Journal of Geodynamics 35(4-5), 521–539. https://doi.org/10.1016/S0264-3707(03)00012-7

[13] Cox, C., & Chao, B. F. (2002). Detection of a large-scale mass redistribution in the terrestrial system since 1998. Science, 297(5582), 831–833. https://doi.org/10.1126/science.1072188

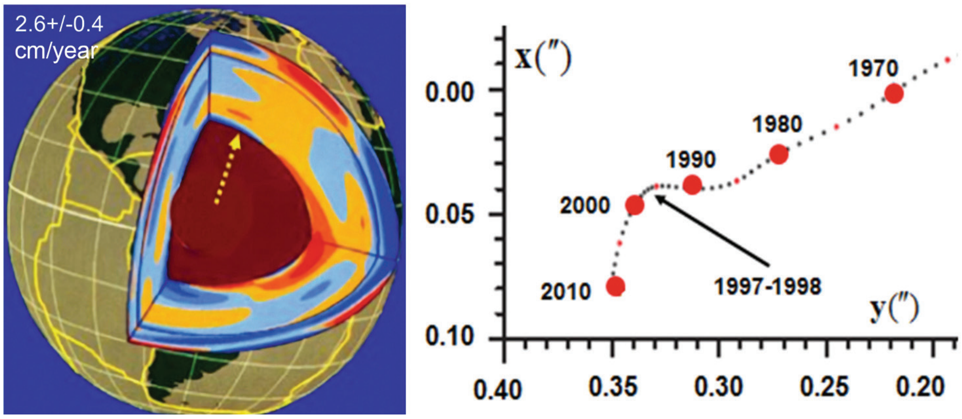

Figure 9

The internal structure of the Earth; the direction of the secular drift of the Earth's center of mass and the trajectory of its pole across the Earth's surface in 1990-2010 with an almost 90 degrees turn in 1997-1998 towards the Taimyr Peninsula.
Source: Smolkov, G.Ya. (2020). Heliogeophysical Research. Issue 25, 14–29. Retrieved from http://vestnik.geospace.ru/index.php?id=569
Graph source: Barkin, Y.V., & Klige, R.K. (2012)

According to the Doctor of Physical and Mathematical Sciences, Professor Yuri Barkin, Doctor of Technical Sciences, Professor Gennadi Smolkov[14], Doctor of Geographical Sciences, Professor Mikhail Arushanov[15], Academician of the Russian Academy of Sciences and Honored Professor of Lomonosov Moscow State University, Doctor of Geological and Mineralogical Sciences Victor Khain[16], and many other researchers, the displacement of the core resulted in changes in all the Earth's shells.

2.4. Mantle. Increase in deep-focus earthquakes

Deep-focus earthquakes are seismic events that occur at depths below 300 km and, in some cases, reaching depths of up to 750 km beneath the Earth's surface. Deep-focus earthquakes occur under high pressure and temperature conditions, where the mantle material is expected to deform plastically rather than be brittle and, therefore, should not generate earthquakes.

The trend of increasing deep-focus earthquakes demonstrates an exponential rise in the number of events at depths exceeding 300 km in the Earth's upper mantle (see Figure 10). In 1995, a significant jump was observed, similar to other geodynamic anomalies.

[14]Barkin, Yu. V. & Smolkov, G. Ya. (2013). Abrupt changes in the trends of geodynamic and geophysical phenomena in 1997-1998. In All-Russian Conf. on Solar-Terrestrial Physics, dedicated to the 100th anniversary of the birth of a corresponding member of the Russian Academy of Sciences Stepanov V.E. (September 16-21, 2013, Irkutsk), Irkutsk, 2013.
[15]Arushanov, M. L. (2023). Causes of Earth climate change, as a result of space impact, dispelling the myth about anthropogenic global warming. Deutsche Internationale Zeitschrift Für Zeitgenössische Wissenschaft, 53, 4–14. https://doi.org/10.5281/zenodo.7795979
[16]Khalilov, E. (Ed.). (2010). Global changes of the environment: Threatening the progress of civilization. GEOCHANGE: Problems of Global Changes of the Geological Environment, 1, London, ISSN 2218-5798.

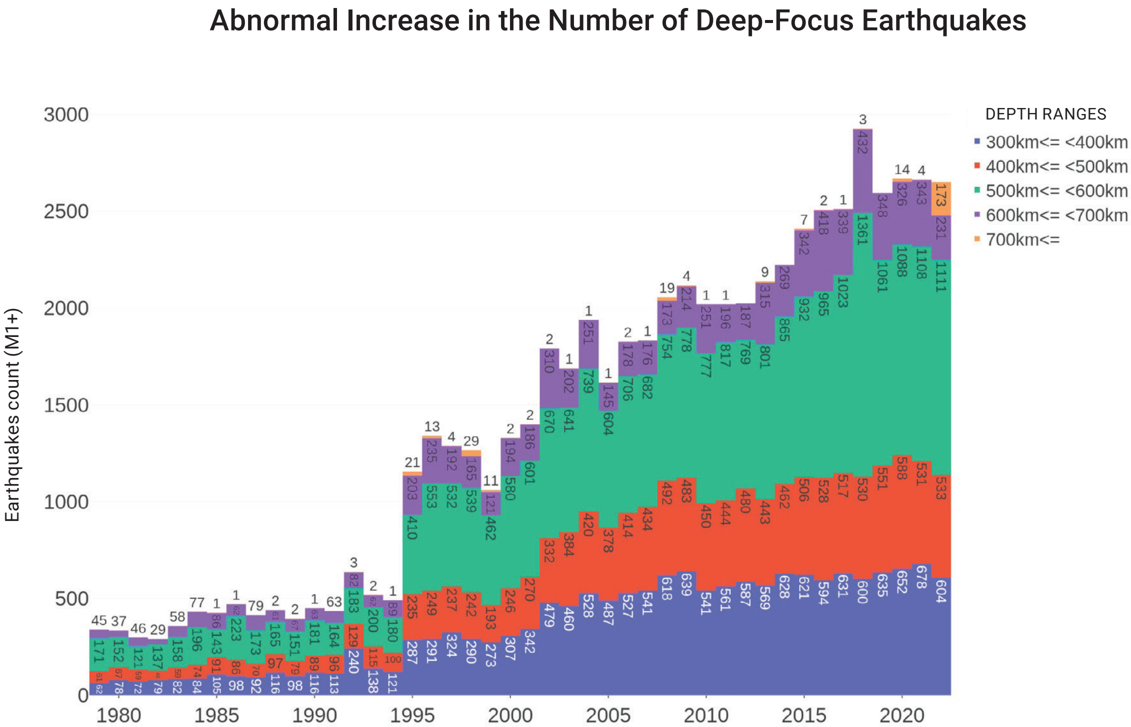

Figure 10

Exponential increase in the number of deep-focus M3.0+ earthquakes globally since 1970. ISC database.

The graph shows the exponential progression of the increasing number of earthquakes at depths exceeding 300 km in the upper mantle of the Earth, where the medium is considered ductile and incapable of cracking. A significant jump can be observed in 1995, similar to jumps in many other geodynamic anomalies. The increase in the number of deep-focus earthquakes is not related to an increase in the number of sensors.

According to the described model, deep-focus earthquakes can be likened to the detonation of a vast number of atomic bombs simultaneously going off deep within the Earth's mantle. This exponential growth indicates extraordinary magmatic activity on our planet (see Figure 11). Of particular concern is the fact that deep-focus earthquakes often serve as triggers for strong earthquakes in the Earth's crust[17].

[17]Mikhaylova R.S. (2014). Strong earthquakes in the mantle and their impact in the near and far zone. Geophysical Service of the Russian Academy of Sciences. http://www.emsd.ru/conf2013lib/pdf/seism/Mihaylova.pdf

Mikhailova, R. S., Ulubieva, T. R., & Petrova N. V. (2021). The Hindu Kush Earthquake of October 26, 2015, with Mw=7.5, I0~7: Preceding Seismicity and Aftershock Sequence. Earthquakes of Northern Eurasia, 24, 324–339. DOI: 10.35540/1818-6254.2021.24.31

Anomalous Increase in the Number of Deep-Focus Earthquakes

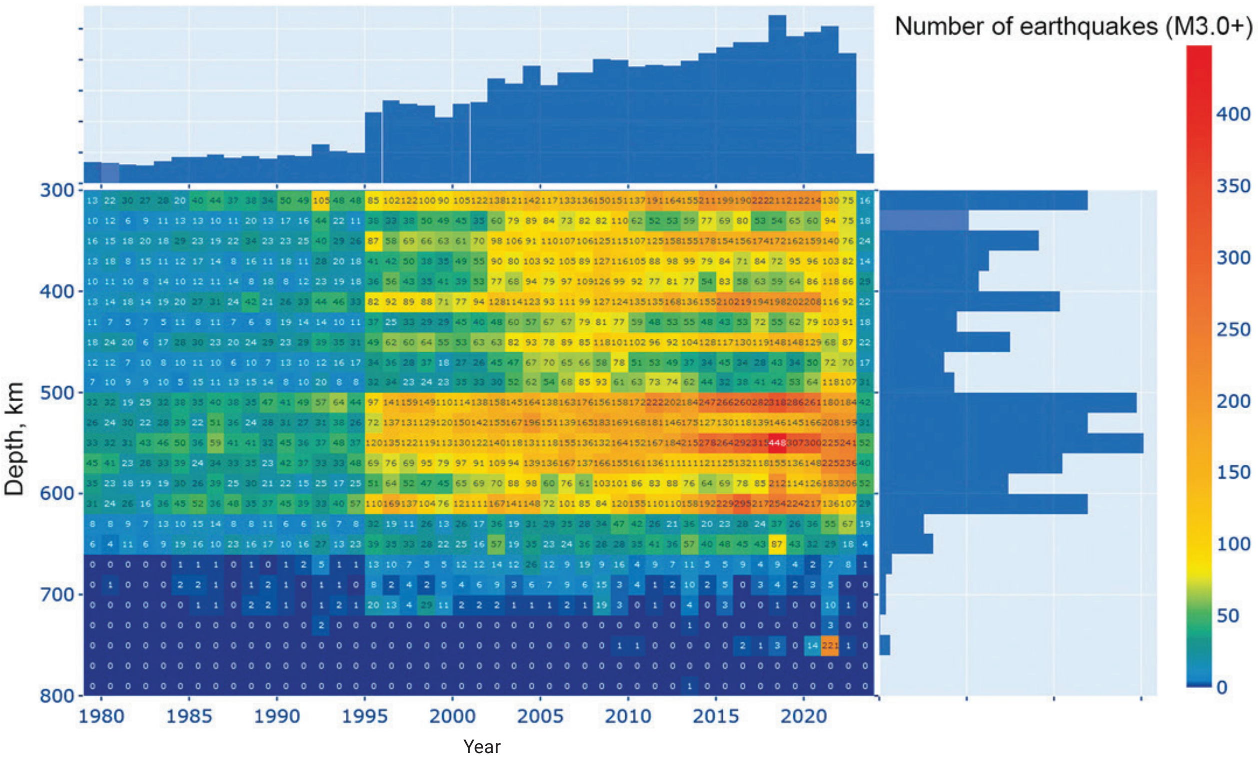

Figure 11

Diagram showing the number of deep-focus earthquakes with a magnitude of 3.0 and above by years and depths. ISC database

2.5. Lithosphere. The rise in seismic activity since 1995 has led to the occurrence of earthquakes in areas where they were previously never recorded

Since 1995, there has been an anomalous increase in seismic activity on Earth (Figure 12): the magnitude, number, and energy of earthquakes are rising, and earthquakes are appearing in areas where they have never been observed before. This trend is noticeable both on continents and on the ocean floor[18] (Figure 13).

The increase in earthquakes with a magnitude of 5.0 and above is reflected in the graph of seismic events based on data from the International Seismological Centre. It's important to note that a magnitude of 5.0 has been globally representative since 1972, meaning, the increase in the number of earthquakes of this magnitude cannot be explained by an increase in the number of sensors.

[18] Viterito, A. (2022). 1995: An important inflection point in recent geophysical history. International Journal of Environmental Sciences & Natural Resources, 29(5). https://doi.org/10.19080/ijesnr.2022.29.556271

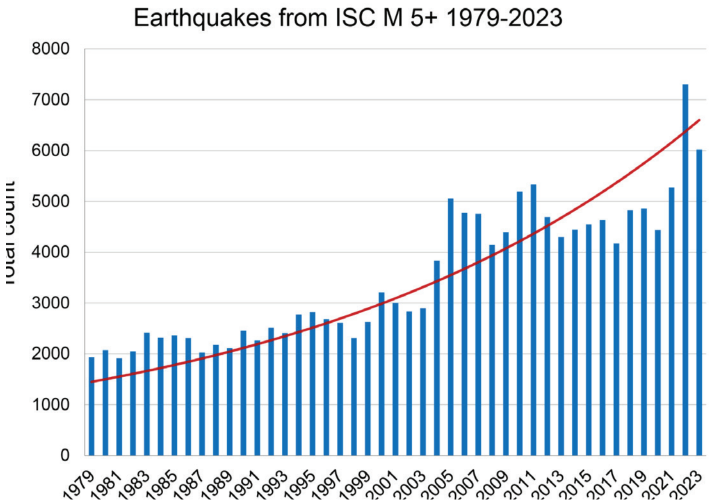

Figure 12

Earthquakes with a magnitude of 5.0 and above from 1979 to 2023, according to the ISC database

Increase in the Number of Earthquakes on the Ocean Floor Along Mid-Ocean Ridges

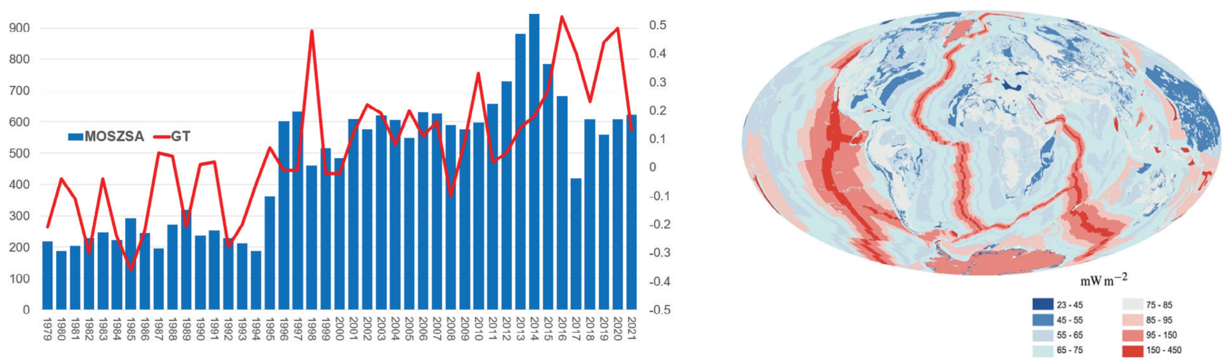

Figure 13

The simultaneous increase in the number of ocean floor earthquakes (on the left). Geothermal heating of Mid-Ocean Ridges, Davies & Davies, 2010.
Source: Viterito, A. (2022) 1995: An Important Inflection Point in Recent Geophysical History. International Journal of Environmental Sciences & Natural Resources, 29(5). https://doi.org/10.19080/ijesnr.2022.29.556271

The diagram illustrates a sharp increase in the number of earthquakes in 1995 on the ocean floor along mid-ocean ridges and a close correlation between ocean floor seismicity and atmospheric temperatures, indicating an additional deep heat source affecting both the ocean and the atmosphere.

There is also an increase in seismic activity near volcanoes and anomalies in eruptions. Lava erupted by volcanoes in the last 5 years exhibits atypical composition and characteristics typical of magma from deep mantle layers[19,20,21,22,23].

[19] Castro, J., Dingwell, D. Rapid ascent of rhyolitic magma at Chaitén volcano, Chile. Nature 461, 780–783 (2009). https://doi.org/10.1038/nature08458

[20] Smirnov, S.Z. et al, High explosivity of the June 21, 2019 eruption of Raikoke volcano (Central Kuril Islands); mineralogical and petrological constraints on the pyroclastic materials. Journal of Volcanology and Geothermal Research, Volume 418, 2021, 107346, ISSN 0377-0273, https://doi.org/10.1016/j.jvolgeores.2021.107346

[21] Witze, A. (2022). Why the Tongan eruption will go down in the history of volcanology. Nature 602, 376-378 (2022) https://doi.org/10.1038/d41586-022-00394-y

[22] Halldórsson, S.A., Marshall, E.W., Caracciolo, A. et al. Rapid shifting of a deep magmatic source at Fagradalsfjall volcano, Iceland. Nature 609, 529–534 (2022). https://doi.org/10.1038/s41586-022-04981-x

[23] D'Auria, L., Koulakov, I., Prudencio, J. et al. Rapid magma ascent beneath La Palma revealed by seismic tomography. Scientific Reports 12, 17654 (2022). https://doi.org/10.1038/s41598-022-21818-9

3. Astronomical Cyclicality

The magnetic field is created by the geodynamo in the Earth's core, and the planet's rotation speed and axis are dependent on the Earth's center of mass, located in the inner core. From this, it can be concluded that in 1995, significant and anomalous changes began in the Earth's core, the process of which requires enormous energy.

The imbalance observed in the work of the Earth's system as a celestial body and within its individual layers can be explained not only by anthropogenic factors alone, but also by the appearance of additional external cosmic influence on the planet's core, which imparts additional energy to the core. This is indicated by the synchronous magnetic, geodynamic, and climatic changes observed on other planets and their moons within the Solar System. For instance, on Mars, processes deep within its interior have begun synchronously with those on Earth: volcanic activity[24], seismic activity[25], and magnetic anomalies[26] are resuming. It is worth noting that changes on planets within the Solar System commenced during a solar minimum period, characterized by reduced solar activity, which suggests that these changes cannot be attributed to solar activity.

According to the hypothesis, this influence, which consists of a certain type of energy, interacts directly and solely with the Earth's inner core, without affecting any other shells of the planet. This type of interaction may be attributed to the fact that the inner core has an extremely high density, and its structure likely differs from the generally accepted iron-nickel theory.

As a result of entropy — the conversion of additional energy into heat — the Earth's mantle becomes hotter, magma becomes more fluid, the flow of endogenous heat from the interior to the surface increases, and new magma plumes are formed. Today, for example, such massive plumes are rising very rapidly under Siberia, partly due to the shift of the core in this direction.

The combination of the above factors, driven by anthropogenic influences and additional energy from external cosmic influence within the planet's interior, leads to unprecedented seismic and volcanic activity and massive climatic catastrophes worldwide.

It is important to note that Earth is not encountering this type of influence for the first time.

Based on geochronological studies of Quaternary sediments and examination of ice cores and traces of large-scale extinctions, including extinctions of human species, it may be concluded that in the past, the Earth faced a drastic increase in large-scale climatic cataclysms approximately every 12,000 years[27]. And every 24,000 years, planetary disasters likely were many times more powerful, as evidenced by examinations of ash layers of volcanic eruptions in ice cores[28] (Figure 14) and other geochronological studies.

[24] Sun, W., & Tkalčić, H. (2022). Repetitive marsquakes in Martian upper mantle. Nature Communications, 13, 1695. https://doi.org/10.1038/s41467-022-29329-x

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Catastrophic Volcanic Eruptions Happening With a 12,000-Year Cycle

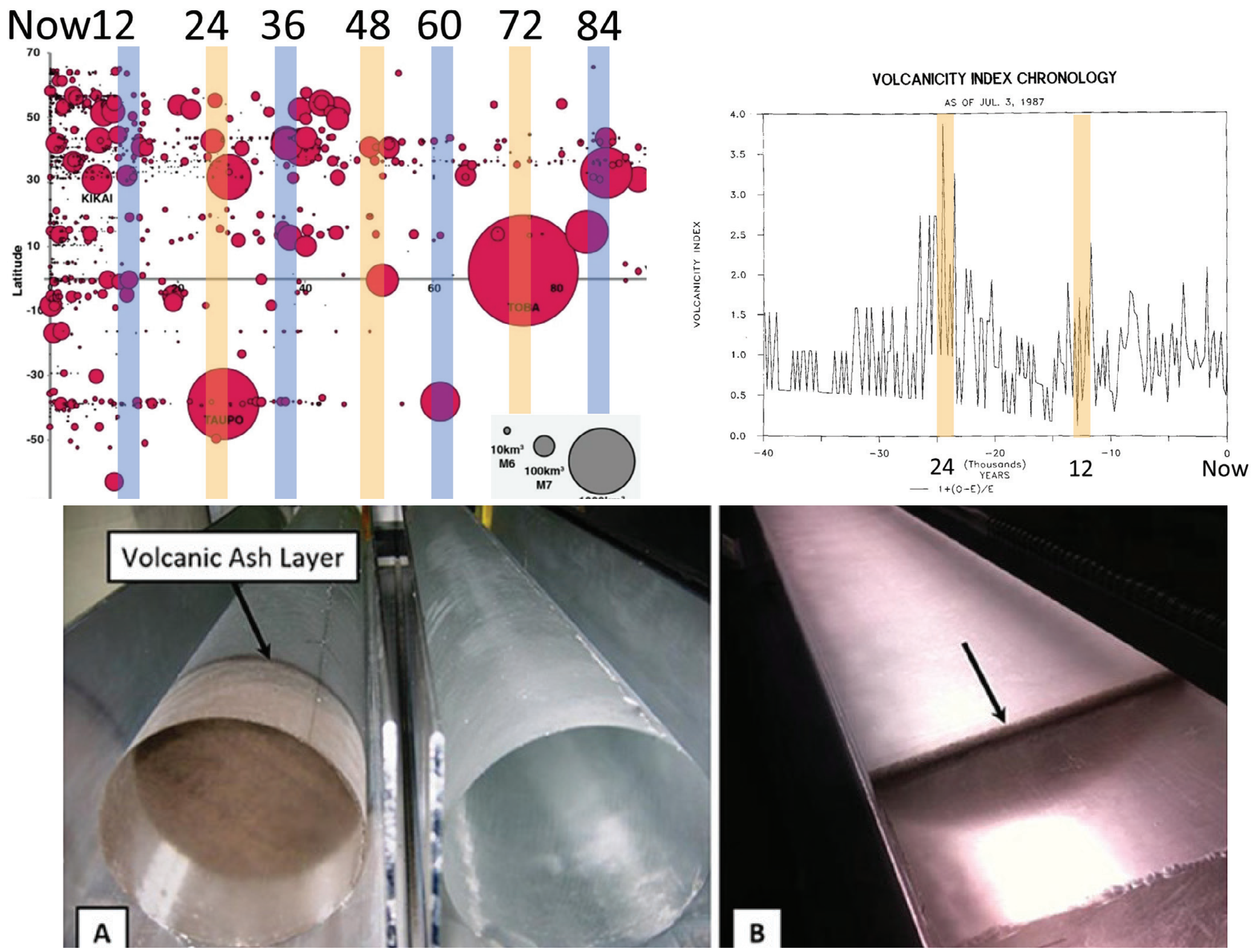


Figure 14

Research data on volcanic ash layers from eruptions over the past 100,000 years in ice cores from Antarctica and the Arctic, compiled from various authors' works.

Source: Brown, S. K., Crosweller, H. S., Sparks, R. S. J., Cottrell, E., Deligne, N. I., Guerrero, N. O., Hobbs, L., Kiyosugi, K., Loughlin, S. C., Siebert, L., & Takarada, S. (2014). Characterisation of the Quaternary eruption record: analysis of the Large Magnitude Explosive Volcanic Eruptions (LaMEVE) database. Journal of Applied Volcanology, 3(5). https://doi.org/10.1186/2191-5040-3-5

Bryson, R. A. (1989). Late quaternary volcanic modulation of Milankovitch climate forcing. Theoretical and Applied Climatology, 39, 115–125. https://doi.org/10.1007/bf00868307

The graphs illustrate catastrophic volcanic activity every 12,000 years and even more intense events every 24,000 years (taking into account dating uncertainties). Such catastrophic events have led to sharp temperature fluctuations, natural disasters, volcanic winters, and mass extinctions. Many super volcanoes that erupted in past cycles have recently begun to exhibit anomalous activity, especially after 1995.

According to mathematical and tectonophysical modeling, by the end of 2024, we will enter an active phase of the 24,000-year cycle of catastrophes, marking a new volcanic epoch caused by widespread magma ascent and lithospheric plate erosion by magma flows. This means that in the coming years, all countries will face unprecedented catastrophic events of immense power.

Currently, none of the world's seismic databases can provide a complete representation of seismic activity worldwide. Graphs demonstrate that since 2014, seismic event datasets have started to differ not only in quantity (see Figure 15) but also in uniqueness (see Figure 16). This means that there are events that are present in one or more databases but are absent in others, although the earthquake datasets should reflect the same reality.

According to independent data sources, there is an exponential increase in seismic activity on our planet (Figure 17). The trend in seismic activity growth indicates that by the year 2030, the number of earthquakes will be so significant that adaptation to these conditions will be impossible.

Discrepancy in Earthquake Counts Across Leading Global Seismological Databases

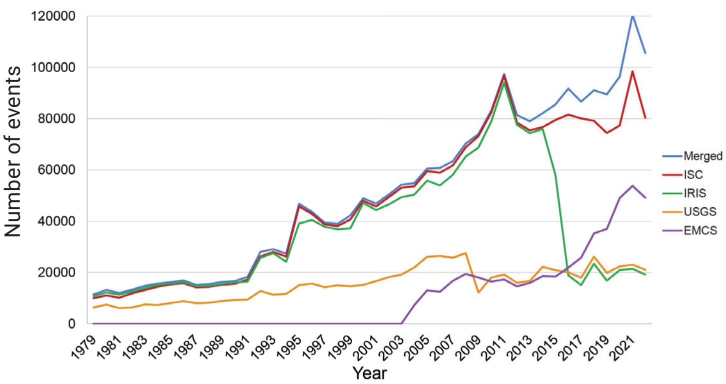
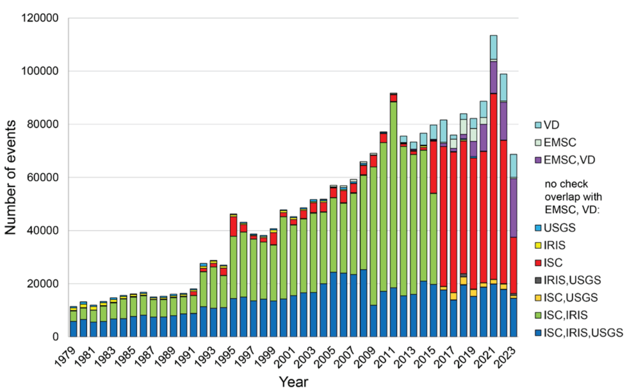


Figure 15

The graph depicts the number of earthquakes with a magnitude of at least 3.0 recorded by various international seismological services over a specific period. The blue curve represents the summation of all unique events gathered from each database.

Number of M3+ unique seismic events during 1979-2023 reported only by indicated agencies



Number of M4+ unique seismic events during 1979-2023 reported only by indicated agencies

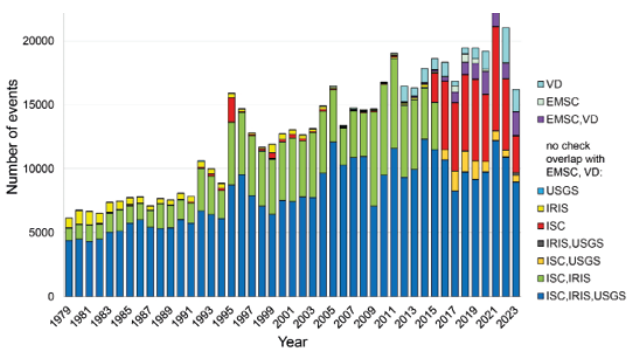


Figure 16

Graphs depicting the number of unique seismic events with a magnitude of 3.0 and above (left) and with a magnitude of 4.0 and above (right) simultaneously present only in the specified seismic services from 1979 to 2023.

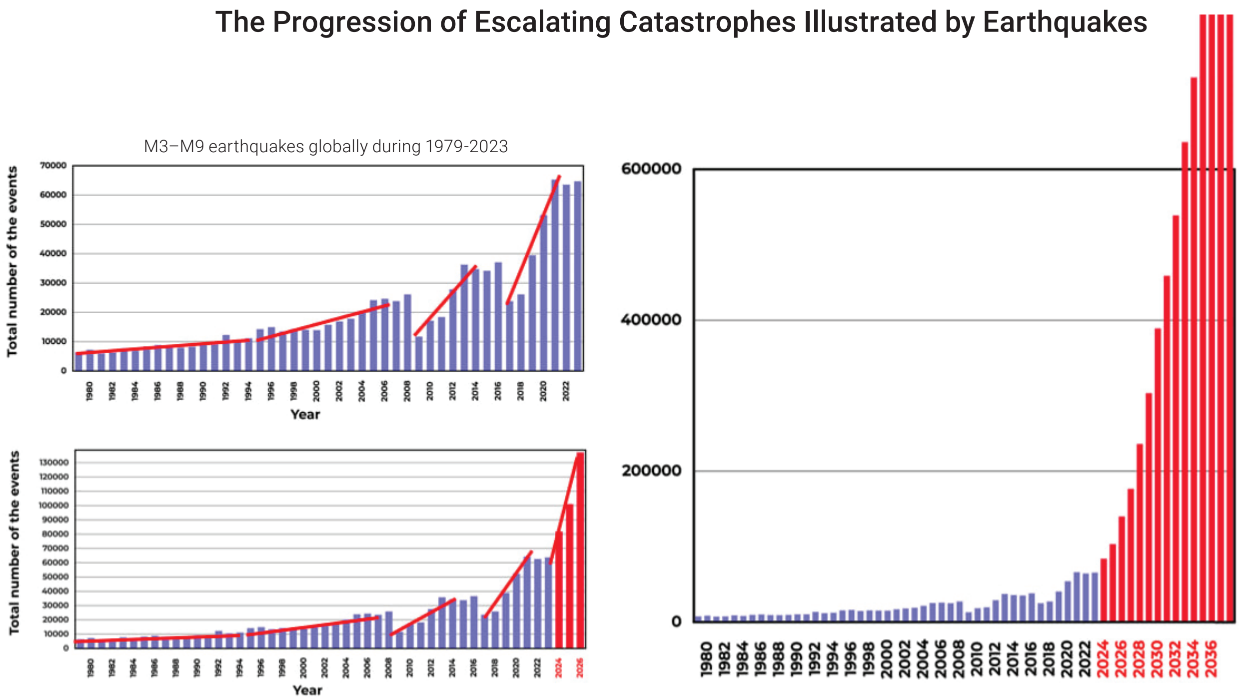


Figure 17

Model of the exponential growth in the number of natural cataclysms on the example of earthquakes up to 2036.

The graphs demonstrate a geometric growth in both the number and intensity of earthquakes on the planet based on the current trend. At each successive stage, the number of earthquakes triples. By the year 2028, Earth will experience 1,000 earthquakes per day with a magnitude above 3.0, whereas currently, there are 125 earthquakes per day with a magnitude above 3.0. With a high probability, in just 6 years, Earth will experience earthquakes every day equivalent in their destructiveness to the earthquake in Türkiye and Syria on February 6, 2023.

Applying the exponential function to assess the damage from climate disasters shows (see Figure 18) that the global economy may struggle to compensate for the losses within the next 4-6 years, potentially leading to an economic crisis. Forecasts indicate a possible collapse of global business during this period. Mathematical modeling suggests that within the next 10 years, the conditions for life on Earth could change significantly.

Although the increase in catastrophes, in addition to anthropogenic activity, is due to a cyclical pattern that the Earth has passed through before, there is no hope that this time the flora and fauna on our planet have a chance to survive like it did before. The reason for this is anthropogenic ocean pollution. Let us recall that the ocean, which has always fulfilled the function of dissipating excess energy from the planet's interior to the atmosphere, has lost its heat conductivity properties. The warmer the ocean becomes, the faster plastic will break down into microplastics and nanoplastics, and the ocean's heat conductivity function will diminish further. It is presumed that Earth will not be able to cope with this cycle of catastrophes on its own. The ocean heating trend line will rise exponentially into the vertical already in the coming years.

Due to the accumulation of excess energy in the depths (see Figure 19), there is already an increase in the intensity and frequency of deep-focus earthquakes. Because the ocean no longer functions as a cooling system, the flow of additional energy into the depths is no longer compensated for, and the formation of new magma chambers is occurring many times more intensively than in previous cycles.

Progression of Projected Damage from Climate Disasters

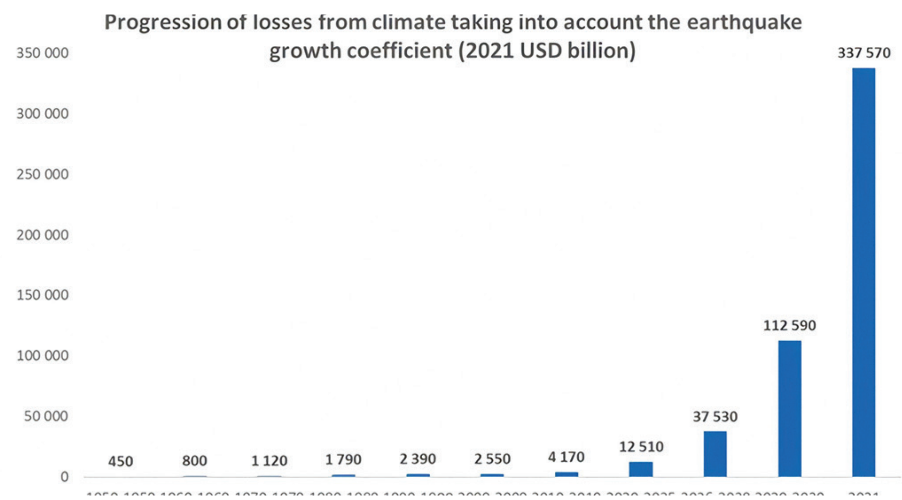


Figure 18

Forecasted economic losses from natural disasters, according to the model of exponential growth in the number of geodynamic and climate catastrophes (2021 USD billion).
Data Source: AON (Catastrophe Insight).

The Growing Imbalance Between Incoming Energy to and Outgoing Energy from Earth

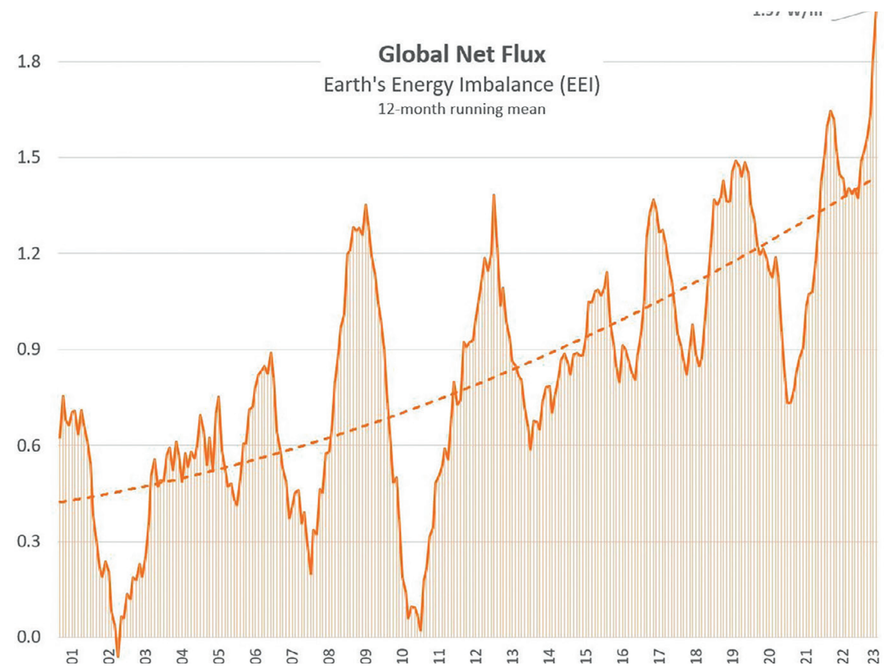


Figure 19

Exponential growth of the Earth Energy Imbalance (EEI), indicating the difference between the incoming solar radiation and the outgoing radiation from all sources. © Leon Simons
Data source: NASA CERES EBAF-TOA All-sky Ed4.2 Net flux, 2000/03-2023/05.

The graph indicates that the Earth's atmosphere is accumulating energy exponentially. This is due to anthropogenic factors and the increased heat from magma rising during the 12,000-year cycle, as well as the reduced ability of the ocean and atmosphere to effectively dissipate heat from Earth's surface into space. As of March 2023, the annual Earth Energy Imbalance (EEI) was measured at 1.61 watts per square meter, the energy of which is equal to about 13 atomic bombs (those that were detonated in Hiroshima) being dropped on the planet every second.

In the given context, the most dangerous territory at the moment is Siberia, which is experiencing extreme warming, 2-3 times faster than the planet as a whole (see Figure 20). This is primarily due to the formation of new magma chambers resulting from the planet's core displacement, which exerts additional pressure on the mantle in this region. The activity of these magma chambers is manifesting in the thawing of permafrost from the bottom up, increased seismic activity in the region, the rise of hot water to the surface, and fires beneath snow over fault zones. In the northern latitudes, methane and hydrogen emissions from the depths are increasing, the number of sinkholes caused by gas explosions is growing, and mud volcanism is intensifying on the Arctic shelf. Already now, beneath Siberia, the lithospheric crust has started to be eroded by magma and is thinning. This process is exacerbating, and the safety margin of the plate is rapidly diminishing. In the event of a magma breakthrough beneath Siberia, the released red-hot melt would erupt outward under immense pressure. It can be said that this poses a direct threat to the existence of both Russia and the entire world.

Temperature Anomaly in Siberia in 2020

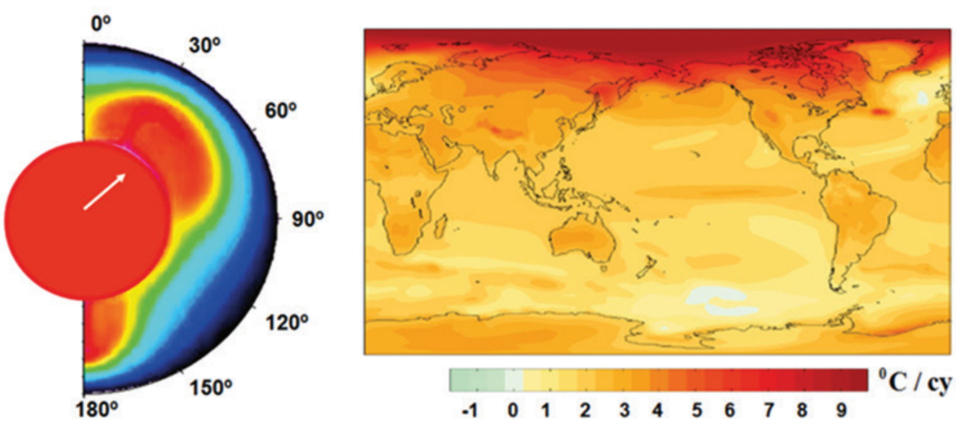


Figure 20

Forced relative shift of the core and mantle, and the scheme of asymmetric heat supply to the upper layers of the mantle (on the left). Linear trends of surface warming (in °C per century) according to NCAR CCSM3 data averaged according to a special scenario http://www.realclimate.org/bitz_fig3.png) (on the right).

Source: Barkin, Yu.V. (2009). Ciklicheskie inversionnye izmenenija klimata v severnom i juzhnom polusharijah Zemli [Cyclic Inversion Climate Change in the Northern and Southern Hemispheres of Earth]. Geology of the Seas and Oceans: Materials of the XVIII International Scientific Conference (School) on Marine Geology. Vol. III. - Moscow: GEOS. pp. 4-8.

The core displacement has impacted all layers of the Earth, and first of all caused the magma to ascend towards Siberia, consequently resulting in anomalous heating of the atmosphere in the region.

For comparison, an activation of the Yellowstone supervolcano in the USA, which also shows signs of abnormal activity, could endanger the existence of the entire American continent, but there would still be a chance for humankind to survive. However, in the event of a magma breakthrough through the lithospheric plate under Siberia, the likelihood that no one will survive is very high.

Restoring the Ocean's Heat Conductivity Function

Therefore, a necessary condition for the survival of humanity is the restoration of the ocean's function to dissipate heat from the Earth's interior. Restoring the ocean's functions can be achieved through the use of atmospheric water generators (AWGs), which will help remove microplastics from the ocean and improve its ability to dissipate heat. This will also lead to improved heat conductivity of the atmosphere and a reduction in extreme weather events. Transitioning to AWGs will reduce dependence on surface and groundwater, contributing to the implementation of many of the Sustainable Development Goals adopted by the UN General Assembly.

To unleash the full potential of AWGs, the following steps are necessary:

1. Complete transition to AWGs to ensure water supply at domestic and industrial levels.

2. Deployment of fuel-free energy generators (FFGs) to power AWGs and elimination of open water reservoirs and dams to restore natural river flow.

3. Reconstruction of sewage systems to prevent pollution of water bodies.

These steps can lead to a scientific and technical revolution, providing sustainable water supply and reducing the negative impact on the climate. According to calculations, within 3-5 years, the ocean will almost fully restore its heat dissipation functions. However, it is important to understand that these measures cannot solve the problem of geodynamic catastrophes, as the cause of these changes lies outside the atmosphere. The widespread adoption of AWGs will only mitigate the consequences of climate change and accelerate the recovery of the planet's environment provided that we protect the planet from external cosmic influences.

Effective resolution of this problem requires international cooperation among scientists, including quantum physicists, who can combine their efforts and resources to develop and implement comprehensive measures. If conditions for open collaboration are created, scientists will not have to start from scratch, as there are already tangible developments and understanding of cause-and-effect relationships in this area.

It is imperative to act promptly and wisely taking into account the remaining time. When making responsible decisions, it is important to remember that humanity has only about 4 to 6 years of relatively calm time left.

Shortened report
on the progression and
consequences of climate disasters

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