

DISAPPEARANCE OF GLACIERS

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Climate change is caused by changes in the Earth's atmosphere, processes occurring in other parts of the Earth, such as oceans, glaciers, as well as the consequences associated with human activities. The following external processes affect the climate change such as:

- change of the size, relief, and relative position of the continents and oceans;
- change of the brightness of the sun;
- change of the parameters of the Earth's orbit and axis;
- changes in the transparency of the atmosphere and its composition as a result of changes in the volcanic activity of the Earth.

Also, climatic change can be caused by human activities, such as using a large number of cars and machines and industries. Pumping of oil and gas changes the natural sublayer of the Earth between the core and the earth crust. Emissions of CO₂ and exhaust fumes change the atmosphere. Deforestation leads to the emergence of a large number of steppes and deserts. Drainage of lakes harms the environment.

What is happening with glaciers now? Recent human activity has led to gradual disappearance of glaciers.

In 2019, due to the melting of glaciers, the level of the World Ocean rose by 2.2 meters in just two months. The journal *Nature Communications Earth and Environment* reports that the glaciers of Greenland have passed the point of no return and the process of their disappearance cannot be stopped. After remote sensing, satellite data showed more than 200 large glaciers, meltwater from which flows into the ocean. Annual snowfall can no longer compensate for the loss associated with the disappearance of ice.

At the end of the last century, a balance was maintained between the arrival of fresh snow and the melting of ice. Since the 2000s, glaciers have been losing about

500 gigatons of ice every year, which they could not balance in any way. It got to the point that the ice stopped contacting the ocean floor, which is why warm water washes (and subsequently accelerates the melting process) the lower layer of glaciers away.

It is predicted that if we do not begin to solve this problem somehow, then in 50 years a global flood may occur.

What people have come up with to solve the problem of glaciers disappearing? A team of scientists has developed a project that involves dumping artificial snow in the Arctic. This is reported by the CNET portal. Their idea is that they will stop the environmental problem with snow and turbines. Engineers will build 12,000 electric turbines that will blow the wind from the snow directly onto the glaciers.

However, there are nuances in this program. Implementing this project will take a lot of energy and money and it can cause decrease in water level in the Arctic Ocean by two or more centimeters. Also, the scientists do not know how artificial snow will affect the environment.

Thus, we can conclude that the problem of melting glaciers is now very relevant, and the humanity has not found the exact ways to solve this issue so far. At the moment we can only slow down the warming process and think over about all the options of the problem solution.

References:

Climate change. (2017). Retrieved from <https://www.indiacelebrating.com/environmental-issues/climate-change/>

Climate Change 2014 Synthesis Report Summary for Policymakers. (2014). Retrieved from https://www.ipcc.ch/site/assets/uploads/2018/02/AR5_SYR_FINAL_SPM.pdf

Jackson, M. (December 26, 2018). The Secret Lives of Glaciers. Retrieved from <https://www.nationalgeographic.com/environment/2018/12/glaciers-disappear-melting-ice-impacts-human-culture-history/>