

## INTERCONNECTION OF THE EARTH'S GEOGRAPHICAL SHELL AND THE BIOSPHERE

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**Abstract:** This article discusses the interaction of the Earth's geographical shell and the biosphere, their composition, main characteristics, and their role in maintaining natural balance. The impact of human activity on these systems, environmental problems, and ways to eliminate them are also analyzed. The study scientifically demonstrates that all parts of the geographical shell (lithosphere, atmosphere, hydrosphere, biosphere) act as a single system.

**Keywords:** hydrosphere, planet, geographical shell, anthropogenic impact, unity, system, negative impact.

**Introduction.** Planet Earth is a complex natural system, consisting of various shells and layers. These shells and layers are closely interconnected and influence each other. The most active and important of them is the geographic shell.

The geographic shell is the only natural environment of the Earth, formed as a result of the interaction of the lithosphere (land), hydrosphere (water), atmosphere (air) and biosphere (sphere of life). The biosphere is the most active participant in this process, ensuring the continuation of life on Earth. Without the geographic shell, the biosphere cannot exist, and without the biosphere, there is no life in the geographic shell. Therefore, they are considered an inseparable, single system.

The essence and structure of the geographical crust. The geographical crust is the most active, constantly changing part of the Earth's surface. It covers the surface of the Earth and includes an area of approximately 30–35 kilometers deep.

Components of the geographical crust:

Lithosphere - the hard outer shell of the Earth, in which rocks, minerals, minerals and soil are formed.

Hydrosphere - the water shell, which includes oceans, seas, rivers, lakes, groundwater and even glaciers.

Atmosphere - the air shell surrounding the Earth, which determines climate and weather processes.

Biosphere - the shell in which living organisms live and is formed as a result of their activities.

These four environments are constantly exchanging matter and energy with each other. For example, steam rises from the sea and returns through the atmosphere as precipitation; plants convert solar energy into organic matter through photosynthesis; plant and animal remains participate in soil formation.

Both matter and heat coming from the Earth's interior and matter and heat coming from space accumulate here. As a result of the stratification of matter in the Earth's interior, the lithosphere and hydrosphere were formed. At a certain stage in the development of the Earth's surface nature, life appeared, and living matter became a factor that actively influenced the development of the lithosphere, hydrosphere, and atmosphere. Under the influence of living matter, these shells acquired their current characteristics. During the long-term development of the Earth in favorable spatial conditions, its own complex and integral natural system arose, which is called the geographical shell.

The role of the biosphere in the geographical shell. The biosphere is the sphere of life on Earth, in which plants, animals, microorganisms and human activity coexist. In this sphere, living organisms affect other shells of the Earth.

For example:

Plants absorb carbon dioxide from the atmosphere and produce oxygen. Animals and people breathe oxygen and release carbon dioxide. Microorganisms participate in the formation of soil, the decomposition of plant and animal remains. Thus, the biosphere is the “living heart” of the geographical shell. It controls the circulation of matter, regulates the climate, and creates the necessary conditions for life. The process of matter and energy circulation. In the geographical crust, matter circulation (the transition of substances from one state to another) and energy exchange (sunlight, heat, temperature changes) are constantly taking place.

For example: Sunlight is the main source of energy for all living things in the biosphere. Water evaporates, forms clouds through the atmosphere, and returns as precipitation. Plants absorb solar energy through photosynthesis, which is passed on to animals through the food chain.

Thanks to such cycles, life on Earth continues and the geographical crust is actively functioning.

Impact of human activity. In recent centuries, human activity related to industry, agriculture, transport and urbanization has had a significant impact on the geographical shell and biosphere.

Negative impacts:

Atmospheric pollution (due to factory and car exhaust gases).

Deforestation and soil erosion.

Pollution of water bodies with chemicals.

Reduction of wildlife, disruption of the ecological balance.

Positive measures:

Use of renewable energy sources (sun, wind).

Expansion of green areas, planting trees.

Development of environmental education and culture.

Rational use of natural resources.

Man should not forget that he is a part of the biosphere. Any action directly or indirectly affects the Earth system.

The balance between the Earth's geographical shell and the biosphere

The continuation of life on Earth is the result of a balanced movement between all parts of the geographical shell. For example:

Climate change changes the flora and fauna of the biosphere.

The drying up of rivers changes the hydrosphere, limiting life in the biosphere.

Deforestation increases the amount of carbon dioxide and raises the temperature of the atmosphere.

Therefore, changes in each shell have a chain effect on the others. Keeping the Earth system healthy means protecting the biosphere, and therefore human life.

Conclusion. The geographical crust of the Earth and the biosphere are a complex but harmonious system that is interconnected. As a result of their interaction, the processes of life, climate, water cycle and soil formation occur. Man is a part of this system, and neglecting him disrupts the natural balance on our planet.

Therefore, our task is to preserve nature, protect the biosphere and increase ecological culture. Only then will the Earth become a favorable environment for life.

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