

Sciences of geology and mineralogy

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Abstract: Geology is the study of earth its interior and its exterior surface, the rocks and other materials that are around us, the processes that have resulted in the formation of those materials, the water that flows over the surface and lies underground, the changes that have taken place over the vastness of geological time, and the changes that we can anticipate will take place in the near future.

Keywords: geology, mineralogy, mineral geology, geomorphology, mineral, physical properties, external forms, paleontology, hydrogeology

Geology is a science we use deductive reasoning and scientific methods to understand geological problems. Geology is a Greek word, meaning geo - earth, logos - word, science. Geology is the science of the formation, structure and development of the earth, which involves the study of the Earth's crust and rocks using various methods (astronomy, physics, geophysics, geography, chemistry, biology, etc.). is based on

The science of geology studies the history of the origin and development of the Earth and its rocks, the crusts that make it up, and, first of all, the composition, structure and processes occurring in the Earth's crust, the location patterns of mineral deposits, etc. Since the 18th century, along with the development of human society, the science of geology has progressed, and it is currently divided into the following independent branches: crystallography, mineralogy, petrography, historical geology, dynamic geology, geophysics, paleontology, petrography, mineral geology, tectonics, geomorphology, hydrogeology and engineering geology.

Crystallography - studies the origin, growth, external forms, internal structure and physical properties of crystals. This science is useful in the study of natural and artificial crystallized bodies, including rocks and building materials.

Mineralogy - studies the chemical composition, physical properties of minerals and various processes related to their formation.

Petrography is a science that studies the rocks distributed in the earth's crust (lithosphere), their mineral composition, structure, bedding and geological distribution.

Dynamic geology is a process that occurs due to changes in the structure and composition of the interior and upper part of the Earth under the influence of geological processes, displacement and redeposition of rocks scattered on the surface

of the earth. Geophysics is a science that studies the formation, development, structure and properties of the Earth's crust and crust (atmosphere, hydrosphere, lithosphere, etc.) and the processes occurring in it (natural and man-made) using physical methods.

Paleontology is a science that studies the remains of plants (flora) and organisms (fauna) that lived in the earth's crust during past geological periods and remained in the layers and became fossilized. Based on paleontological data, the age and conditions of formation of rocks are determined.

Tectonics is the study of the changes in the initial state of rock formations, the formation of cracks in them, the movements that create folds and dislocations, the deformation of layers, and the changes that occur in the subsurface. This scientific knowledge is of great importance in studying the emergence and distribution of the main types of Earth's relief.

Hydrogeology is the science of underground waters, their formation, bed conditions, location, spread, distribution, regime, physical properties and chemical composition, as well as their interrelationship with atmospheric and surface waters. also explores issues of protection against depletion of groundwater reserves and their importance in the national economy.

Engineering geology is a branch of geological science that studies the geological conditions of the upper horizons of the earth's crust and their changes under the influence of human engineering activities. With the help of engineering-geological research, the changes occurring in the upper part of the earth under the influence of natural and man-made factors are evaluated. Also, with its help, the most convenient places for the construction of buildings and structures are selected, their most reliable construction is determined, the methods of work are determined, and measures are developed to eliminate the negative geological and engineering-geological processes that occur after the construction of the structures. Based on the information of engineering - geological studies:

- 1) compression and amount of rocks at the base of the foundation;
- 2) stability against displacement of rocks from the base of the foundation;
- 3) stagnation of rocks in construction pits, quarries, road embankments, canals and road embankments;
- 4) in the upper part of dams built on water reservoirs Resistance of dams against displacement caused by water pressure;
- 5) washing of the shores after the construction of reservoirs;
- 6) stability of the foundations of structures when the level of ground water rises;
- 7) the stability of structures built in regions with seismic movements, sedimentary rocks, and landslides is determined by calculation.

Scientific geology was founded by the Russian scientist M.V.Lomonosov (1711-1765). He devoted his work «O sloyax zemnyx» («On the layers of the Earth», 1763) to the problem of formation and development of rocks, minerals, mountain systems, valleys and underground water.

Mineralogy.

Solving mineralogy problems on the basis of physico-chemical laws A.N.Zavaritsky, D.S.Belyankin, A.G.Betextin, D.S.Korzhinsky, N.V.Belov, the services of V.A.Nikolaev and others are very great. Mineralogy serves to increase the mineral raw materials necessary for the development of industry and agriculture in our country. Does. Currently, there is no sector of the national economy in which Mineral should not be used.

Mineralogy is of great importance in prospecting and exploration

Has, because it helps to determine the industrial importance of minerals and the formation processes of necessary mineral deposits.

The most important task of mineralogy at the present time

Consists of:

1. Practical use of minerals in various industries and physical and chemical in order to discover new types of them Properties, their chemical composition and crystal structure comprehensively in-depth to study in detail depending on check

2. Conditions of occurrence of minerals and mineral production determining the history of the processes (genesis), as well as this legal exploration of various mineral deposits and together with mineralization for use in exploration work discovery and mineral complexes in ores and rocks checking the laws of successive occurrences.

Mineralogical investigations are clear in solving these tasks

Sciences physics, chemistry, crystallography, crystallochemistry, colloid chemistry and is based on the laws of physical chemistry. Collected mineralogy data, in turn, in such sciences as geochemistry, petrography, in the science of mineral deposits, as well as in prospecting and several technical sciences (metallurgy, used in mineral enrichment and other sciences).

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