The geological facts of the changes of Earth's climate and the problem of modern global warming

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The problem of global warming of Earth's climate, and the possibility of development of dangerous natural phenomena, related to it, causes the interest and draws the attention of the specialists from various fields of sciences, the wider public and the state institutions.

In geology, along with the study of the issues of development of organic and inorganic nature, there are findings that reveal the geological facts of palaeoclimatic changes.

Based on the modern theory of mobilism of platetectonic, it is established that during the geological periods, the lithosphere plates and connected continents and islands, while their horizontal movement, had been crossing various climatic zones of the Earth.

For example, certain parts of The Caucasus, and particularly of Georgia, during 350-400 mill. years, had passed their rout from hot equatorial and subequatorial climatic zones to contemporary moderate zone, what is established, along with other evidences, according the study of preserved fossil remnants of flora and fauna of respective geological materials. The climate had changed accordingly. This fact cannot though explain the issue of modern global warming, because the climate change, induced by the plate movement, has its certain direction and recurrence, and the slow movement of plates (by single centimeters per year) needed millions of years for crossing the climatic zones.

The Quaternary period, or the last 1.6-1.8 mil. Years, of the geological history of the Earth, is characterized with repetitiveness of glacial and interglacial periods, what is corroborated with the study of variability of plant cover and other natural elements, of respective geological materials.

This variability is reflected on the climatic-stratigraphic scale, comprised by certain methodology, yet the duration of glacial (cold) and interglacial (warm) periods, had stretched for tens of thousands of years, what could not solve the problem of modern global warming.

In this respect, the facts, indicating the volatility of relatively short-term climatic change, during Holocene (10-13 thousand years), the last quarter of Quartenary period, seem interesting. Particularly, the results of spore and pollen analysis of micro-phosilies (plants) in Tbilisi region, of Lisi lake sediments, has determined some seven palaeo-zones, of indicated era, that nearly match the internationally accepted chrono-zones . These palaeo-zones (chrono-zones) are characterized with recurrence of cold and warm climate, what is reflected by the reconstruction of changes in plant cover, and the lake surface levels. The duration of each chrono-zone equals approximately, to 1,856.0 years. This type of rhythmicity is more acceptable for the problems of global warming though the reasons of this phenomenon are not still revealed.