Insolation Periods of Climate Change as a Means of Solving Cryospheric Puzzles

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Many processes on Earth, including weather and climate, are determined by the heat of the Sun. Day is replaced at night due to the rotation of the Earth around its axis. Winter comes to replace summer, because the Earth is orbiting around the Sun and its axis inclines to the orbit's axis of the angle 23.4°. Because of these movements, the length of the day along the latitude of the Earth varies from 24 hours to the polar night.

The orbital and rotational movements of the Earth create the contemporary climate on the Earth. However, the parameters of these movements change over the times of tens thousands years and the climate becomes other. For example, the angle of inclination (obliquity) varies from 14.4° to 32.4°. With a small angle of obliquity it is observed a cooling at high latitudes, and with a large angle the warming occurs. For example, 32.28 thousand years ago (ka) with an angle of 32.1° the heat per year at high latitudes is twice more than 46.44 ka at the angle of 14.8°. In these two epochs, in the summer half of the year also doubles the heat more at high latitudes.

However, in equatorial latitudes, the changes are completely different and even reverse in direction. For example, in the warm epoch of 32.28 ka the annual heat is less by a quarter than in the cold epoch of 46.44 ka. In such cold epochs, as 46.44 ka, at latitudes of 53.4 ° and more the heat in the summer half year is less than now at the pole. Therefore, the snow does not melt over the summer, and in such cold epoch the ice cover forms in high latitudes, i.e. the ice age comes.

What is interesting are the winters in the ice age. They are warmer around the globe than during the warm period. The Warm winters, the warm oceans in winter it is lead to an increase in snow precipitation, which further contributes to the growth of ice caps.

And in yhe warm epochs, for example 32.28 ka in the summer half year, even at a latitude of 80°, there is more heat than now at the equator. Therefore, all ice sheets on the continents are disappearing, and in Greenland and Antarctica they are greatly reduced. At the same time, winters are cold, so little falls during the winters, and glaciers are not restored.

What is interesting is the polar circle. In the warm epoch, it descends to the latitude of the Tyumen, i.e. polar days and polar nights come here, and at the same time it is warmer in summer than at the equator. That is, the Earth's climates are becoming others, and such that no one could even imagine.

Therefore, it becomes clear why the past of the Earth consisted of a number of puzzles, for the solution of which the researchers put forward as many presumptions and hypotheses as there were the researchers. New Astronomical Theory puts an end to these hypotheses. All extremums of insolation are timed to within a few minutes and for 200 ka numbered. Insolation periods of climate change are defined. They coincide with paleoclimate changes according to its study for 50 thousand years. Therefore, the insolation periods are a reliable means for solving cryospheric puzzles.

The report at the conference "Insolation Periods of Climate Change as a Means of Solving Cryospheric Puzzles" is available on YouTyube: https://youtu.be/a24ZCAxwkag.