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Geochronology and movement of the Sun around the Galaxy center

It is considered quite an established fact that the Earth, and its bark develop not only directionally and non-uniformly, but also cyclically with the certain periodicity. Cyclic development of the Earth may not be explained by any endogenic processes spontaneously developing towards an achievement of a minimum of energy of system. Many researchers bind it to space life of the planet being a component part of Solar system, the Galaxy, Local group of galaxies and Metagalaxy.

Cycles of various duration are marking in a geologic history of evolution of the Earth. Duration of large cycles is valued in 170-220 million years, average cycles - 25-70 million years. Many explorers link large cycles to move of the Solar system round the Galaxy center.

According to modern representations the Solar system is on spacing interval ($\mathbf{R_0}$) nearly 10 kpc from the center of the Galaxy and moves with velocity ($\mathbf{V_0}$) about 250 km/s on almost circumferential orbit lying in a plane of the Galaxy. In Sun vicinities one revolution on a galactic orbit lasts about 250 million years.

However there are also other opinions on parameters of a galactic orbit of the Sun with significant divergences between these opinions. The common for numerous opinions is that the Solar system round the Galaxy center moves according to the first and the second Kepler's Laws, i.e. on an elliptical orbit and with constant sector speed.

The Earth has passed through long geologic history. Its motion together with all Solar system on a galactic orbit should affect terrestrial geological processes. It especially influenced on durations of geological eras and the periods because of motion speed variation on this orbit. The data sharing of geology and stellar astronomy allows defining more exactly parameters of a galactic orbit and of a geochronological scale.

As a result of the analysis of the geochronological and astronomical data and calculations authors have taken over that move of the Solar system round the Galaxy center is happening along elliptical orbits with growing meanings of the semi-axes **a** and **b** and of the orbital period after every revolution, but with constant by a placing of the Galaxy center in one of ellipse focal points. Transition to following elliptical orbit originates in perigalacticion.

At selection of the beginning of galactic year from the beginning of the period corresponding to passage perigalacticion, four periods go into each such year in Phanerozoe, since Vendian. Every the first of them corresponds to passage of an orbit sector in perigalacticion and every the third of them - in apogalacticion.

The analysis of the geochronological data according to the accepted model of movement has allowed correcting duration of some geological periods and their position on an axis of time t

and also bringing in the new geological period. Introduction of this period has caused considerable, but geological well-founded changes in duration of the neighbor periods since this period is educed from them.

As a result of the analysis the future duration of the quaternary period is calculated and also is defined more exactly duration of the first period of the Phanerozoe - Vendian and thus the beginning of the Phanerozoe is defined more exactly also.

As a result of the fulfilled study it is erected that in Phanerozoe the Solar system made three complete revolutions round the Galaxy center. Each such revolution is carried out during the time corresponding the durations of the geologic era. The authors conserved the former names of these eras: the Paleozoic, the Mesozoic and the Cenozoic, but with the correction of their durations at the result of the fulfilled calculations. The fourth revolution has begun with the beginning of the Quaternary period, i.e. 1.62 million years ago.

Joint use of geochronological and astronomical data allowed to determine parameters of galactic orbits of Solar system in the Phanerozoe according to the accepted model of motion. It creates a physical substantiation for large geochronological divisions (era, period) and for cyclic tectonic processes of the big duration.