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Why do Volcanic Eruptions, Earthquakes, and Tectonic Movements Occur?

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Abstract

This article proposes a rationale for the causes of volcanoes, earthquakes and any tectonic movements in the past and present of the planet based on the author's theory of vortex gravity, cosmology and cosmogony.

Keywords: Theory of Vortex Gravitation, Celestial Mechanics, Cosmology, Cosmogony

1. Introduction

From the 1600s and beyond people believed that the Earth's rotation around its axis and revolves around the Sun has always happened and will continue. Doubts about the constancy of the speed of rotation of the earth arose after the discovery of E. Halley in 1695 observing secular acceleration of the moon's motion. The idea of the secular slowing the rotation of the Earth under the influence of tidal friction was first proposed by Kant in 1755 Nowadays Richard Stephenson from Durham University in the UK, based on the descriptions of hundreds of solar and lunar eclipses for the last 2,700 years, came to the conclusion that the Earth continues to slow its rotation about its axis [1].

To cause slowing of the Earth are created by many factors. These include the gravitational influence of the moon and sun, braking or drag with the cosmic dust, atmospheric and geophysical processes and many other physical phenomena. In this paper, conventional explanations of irregular rotation of the earth that is understood as an unproven and (or) is negligibly small. External gravitational influences or atmospheric effects can not only slow, but can also accelerate the Earth's rotation.

The genesis of our planet, including the slowing of its rotation, fully explained by the theory of vortex gravitation, cosmology and cosmogony [2].

For greater clarity, the next chapter outlines the principles of the theory of vortex gravitation.

2. On the Theory of Vortex Gravitation

Our Universe has unique qualities, which include the universal rotation of all celestial objects (celestial bodies or systems of bodies), of which the visible Universe consists. To date, there is no generally accepted scientific explanation for these rotations. The proposed model of gravity, cosmology and cosmogony is based on the condition that celestial objects received the impulse of their rotation from the vortex rotation, in the corresponding celestial region, of the cosmic, gaseous medium called the ether.

The rotation of the ether is carried out in accordance with the circulation of celestial bodies around the center of rotation. That is, the orbital speeds of rotation decrease in the direction from the center of rotation to the periphery, according to Kepler's 3rd law, provided that the orbital trajectories of the ether are circular.

In accordance with the Bernoulli principle, the change in orbital velocities causes an inversely proportional change (increase) in the pressure in the ether. The pressure gradient creates buoyancy forces.

The buoyant force is the gravitational force.
Since the vortex rotates in one plane, the decrease in the pressure of the ether occurs in the plane of rotation of the ether. Based

on the law of Archimedes, all bodies are pushed into the plane in which the least pressure occurs. Therefore, the gravitational forces act in a plane-symmetrical manner and it is necessary to abandon the classical model of the centrally symmetrical action of the gravitational forces.

Ether is an extremely low dense gas that permeates all bodies (substances), except for superdense ones. Therefore, the ether can push out only these superdense bodies. These superdense bodies include the nucleons of atoms.

In the theory of vortex gravitation, the Navier-Stokes equation for the motion of a viscous liquid (gas) was used to determine the pressure gradient in the ether vortex.

$$\rho\left[\frac{\partial}{\partial t}+\vec{v}\cdot \text{grad}\right]\vec{v}=\vec{F}-\text{grad } P+\eta\Delta\vec{v} \qquad (1)$$

where ρ is the ether density, $\vec{v}$ and P are, respectively, its velocity and pressure, and η- the ether viscosity. In cylindrical coordinates, taking into account the radial symmetry $v_r = v_z = 0$, v = v(r), P = P(r), the equation can be written as the system:

$$\begin{cases} -\frac{v(r)^2}{r}=-\frac{1}{\rho}\frac{d\,P}{d\,r} \\ \eta\cdot\left(\frac{\partial^2 v(r)}{\partial r^2}+\frac{\partial v(r)}{r\,\partial r}-\frac{v(r)}{r^2}\right)=0 \end{cases} \qquad (2)$$

After the transformations, an equation was obtained for determining the forces of gravity in the ether vortex:

$$F = V_n \times \rho \times \frac{v_e^2}{r} \qquad (3)$$

with the following dependence $v_e \sim \frac{1}{\sqrt{r}}$ where
Vn - the volume of nucleons in the body, which is in the orbit of a torsion with a radius - r.
$\rho = 8.85 \times 10^{-12}$ kg/m3 - ether density [4]
v_e - speed of the ether in orbit r
r - radius of considered ether vortex orbit
Let us replace in equation (3) the volume of nucleons by their mass, using the well-known dependence:

$$V_n = m/\rho_n, \qquad (4)$$

where
$\rho_n \sim 10^{17}$ g/m3 is the density, which is constant for all nucleons.
m is the mass of nucleons in the body
Substituting (4) into (3) we get

$$F_{gn} = \frac{m}{\rho_n}\times\rho\times\frac{v_r^2}{r} = 10^{-28}\times m\times\frac{v_r^2}{r} \qquad (5)$$

Note 1. Using the equations of vortex gravity (3) and (5), it is possible to calculate the gravitational forces that act only in the plane of the vortex (torsion). To determine the forces of attraction at any point, additional studies are presented below.

3. Changes in Volume and Mass of the Earth

According to the theory of vortex gravitation, cosmology and cosmogony, the initial moment of the appearance of any celestial body was the emergence of space, ether vortex. At the time of its inception, each vortex created his vortex gravity (Chapter 2). Vortex gravity can be regarded as a "generator world of matter" that sucks and (or) creates a vortex inside the elementary particles. Thus, the mass of each celestial object in the initial moment of its existence, was equal to the mass of the cosmic ether, from which it forms a vortex. Since the density of the ether is negligible, then the mass of each of the newly formed vortex ether should be close to zero. Consequently, each celestial body in the history of its existence, increased its weight from "zero conditional" to these values. It is worth noting an important condition - cosmic whirlwind unopposed, constantly maintained and retains its original speed (see assumption. № 1). Therefore, the space whirlwind constantly generates the same mass of substance. That is any celestial body increases the weight by a constant.

Modern studies customary slowing the Earth's rotation value 0.00002 seconds in each year [1].

Then the relative increase in time for the Earth's rotation around its axis is increased by a factor K_t.

$$\boldsymbol{K_t = \frac{24\times60\times60\times365+0{,}00002}{24\times60\times60\times365} = 1+2{,}314\times10^{-10}} \qquad (6)$$

By increasing the time for one revolution of the earth that is inversely proportional to the rotational speed decreases V_e. Then the relative decrease in the rate of rotation of K_v can be expressed as

$$\mathbf{K_v = K_t^{-1} = (1+ 2{,}314 \text{ x } 10^{-10})^{-1}} \qquad (7)$$

Further calculations are based on the law of conservation of angular momentum the Earth's rotation around its axis.

$$\mathbf{M\ V_v\ R_e = const} \qquad (8)$$

M - mass of the planet,
V_v - the speed of rotation of the planet,
R_e - the radius of the planet.
From equation (8)

$$\mathbf{M\ V_v\ R_e = (K_m\ M)\ (K_{vv}\ V_v)\ (Kr_e\ R_e) = const}$$

Where the coefficients K_m, K_{vv}, K_{re} - show the relative changes in the values M, V_v, R_e.
Hence

$$K_m\ Kv_v\ Kr_e = 1 \quad (9)$$

Substituting (7) into (9) we obtain

$$K_m\ K_{re} = 1 + 2{,}314 \times 10^{-10} \quad (10)$$

Planet mass (M), as well as its volume (V) is proportional to the radius of the planet in the cube.

$M \sim V \sim Re^3$ here

$$Kr_e^3 = K_m \quad (11)$$

Substituting (11) into (10)
$K_r^4 = 1 + 2{,}314 \times 10^{-10}$ or

$$K_r = (1 + 2{,}314 \times 10^{-10})^{1/4} = 1 + 5{,}785 \times 10^{-11} \quad (12)$$

Substituting (12) into (10) we determine the relative increase in the mass of the Earth –

$$K_m = 1 + 1{,}735 \times 10^{-10} \quad (13)$$

To determine the absolute values of the physical characteristics of the Earth
At rotation speed of the Earth surface at the equator V_v = 465,1 m/s annual slowdown will

$$465{,}1 \times 2{,}314 \times 10^{-10} = 9{,}3 \times 10^{-8}\ м/sek \quad (14)$$

When the radius of the Earth Re = 6371000 m annual increase in the radius of the Earth

$$6371000 \times 5{,}785 \times 10^{-11} = 3{,}7 \times 10^{-4}\ м\ или\ 0{,}37\ мм/year \quad (15)$$

or 37 cm in 1,000 years or 370 m 1 000 000 years
Therefore, the earth deposits at a depth of about 370 m have an average age of the sediments million years ago.

When the mass of the Earth M = 5.9736 × 10^{24} kg annual weight gain

$$5{,}9736 \times 10^{24} \times 1.735 \times 10^{-10} = 1{,}036 \times 10^{15}\ kg \quad (16)$$

Increased Earth
The surface area of the Earth $S_v = 4\ M\ R^2$. Increasing the radius of - 3.7 x 10^{-4} m
Then the volume of the Earth increases by –

$$4\ П\ R^2 \times 3{,}7 \times 10^{-4} = 4 \times 3.14 \times (6{,}371 \times 10^6)^2 \times 3{,}7 \times 10^{-4} = 1{,}886 \times 10^{11}\ м^3 \quad (17)$$

Additional mass density

$$P = 3{,}456 \times 10^{14} \times (1{,}835 \times 10^{11})^{-1} = 1883\ kg/м^3 \quad (18)$$

Note. The absolute values of the above characteristics of the Earth is only valid in the present historical moment, as the speed, radius and mass of the planet are constantly changing.

4. Mass and Age of the Earth

Earth's mass is constantly increasing the amount of (13)

$$K_m = 1.735 \times 10^{-10} \times M$$

Mass of the planet increases always constant. Therefore, by dividing the mass of the Earth on its permanent annual increase **($M \times 1.735 \times 10^{-10}$)**, we obtain the age of the planet

$T = M \times (M \times Km)^{-1} = M \times (M \times 1.735 \times 10^{-10})^{-1} = (1{,}735 \times 10^{-10})^{-1}$ **= 5,76** billion years

Radioisotope dating [4] established the age of the planet size of 4.54 billion years [4]. It should be noted that the radioisotope dating explored only the surface layers of the planet. Therefore, the results of these studies (age) can be attributed only to the same surface layers.

The proposed method of determining the age of the planet considering as a single physical object, which increases the reliability of its results.

5. Creation of Substance of the Planet

Most modern scholars explain the increased mass of the planet and meteorite dust flux of cosmic matter on Earth. The magnitude of this cosmic matter is determined by researchers in the order of several tens of thousands of tons (**10^7 kg**) per year. In this paper we calculated that the observed slowing rotation of the planet can only be achieved by increasing the mass of the planet at **1,036 x 10^{15} kg** per year (the equation 16). This calculated weight exceeds the estimated mass of cosmic matter that falls to Earth from space, hundreds of millions of times. Consequently, the total mass of cosmic dust and meteorites falling annually on our planet, is **negligible**. Therefore, the study of increasing the mass of the Earth, the mass of meteorites can be neglected and consider another source of creation of matter.

Based on the principles of vortex gravity and cosmogony, the matter of all celestial bodies (elementary particles) creates etheric vortices. In the central part of the vortex, the pressure gradient (and, consequently, gravity and pressure) creates such a tremendous value that the ether is compressed into a dense substance equal to the density of nucleons. This is the core of celestial bodies.

The superdense core does not allow any radiation, including ether, to pass through. At the same time, the impenetrable substance of the core acts as an obstacle to the orbital rotation of ether in orbits below the orbit of the outer surface of this core. As ether moves close to the surface of the core, turbulence, swirls, and numerous microvortices arise in its flows. These microvortices, similar to planetary torsion, draw in and condense cosmic gaseous matter with their own gravity. At the center of micro-torsions, the particle

density reaches the density of nucleons – 10^{17} kg/m3. It should be noted that micro-torsions are created at orbits of the terrestrial torsion higher than the orbit of the Earth's core. The force of vortex gravity decreases with increasing orbit. This allows for the creation of not only nucleons but also atoms. The continuously created atoms of various substances in the central region of the cosmic vortex give rise to celestial bodies. Throughout the mega-history of the existence of all celestial bodies, the process of atomic formation is continuous. By infusing magma, newly formed atoms continually "feed" celestial bodies with additional mass. Periodically overflowing, the magma emerges through cracks in the Earth's crust to the surface as volcanic lava. Geologists estimate the total mass of lava erupted annually to be in the tens of cubic kilometers, or 1012 cubic meters. With an average lava density of 103 kg/m3, its mass is approximately 1015 kg.

Therefore, the actual mass of lava erupted annually corresponds to the increase in the planet's mass, according to the proposed calculation. This confirms the validity of the proposed study on the change in the physical and age parameters of the Earth.

The very fact that matter (lava) emerged from the depths of the planet proves that this matter originated in the Earth's interior and was not delivered from space. This statement is obvious, as it is impossible for meteorites or cosmic dust to penetrate the planet and then erupt as lava.

The constant increase in the mass and volume of celestial bodies (Earth) creates not only volcanic eruptions but also the movement of the dense Earth's crust. Crustal movement causes earthquakes (in the present) and the movement of tectonic plates (in the past). All the above principles of vortex cosmogony apply to all celestial bodies in our Universe.

The main conclusion of Chapter 6 is that matter is created by cosmic vortices from the ether, within the vortex or corresponding celestial bodies. The movement of matter in the Universe from one celestial body to another is only minor and does not affect the physical properties of celestial bodies.

Atoms of all chemical elements created in the Earth's core constantly overflow this core, creating enormous pressure on the planet's overlying layers. This pressure exceeds the Earth's vortex and gravitational pull, which act inversely. Thus, the overlying layers of the Earth are constantly being pushed toward the surface by the lower layers. During this movement, chemical elements at certain depths enter into geophysical processes and form the inorganic compounds we all know—rocks, hydrocarbons, water, gases, and others. At certain historical moments, these deposits approach the Earth's crust or emerge on the Earth's surface. Consequently, all the mineral resources necessary for human civilization are inexhaustible. To replace the hydrocarbons, diamonds, gold, and other natural resources valuable to humans that have been explored and produced, the Earth will create new ones and displace them from its depths into the Earth's crust or to the surface.

Not only plant and animal species emerged from the depths of the planet, but also pathogenic viruses and bacteria, as evidenced by the chronicle of atmospheric catastrophes and epidemics. Thucydides (c. 460–400 BC) reports that the epidemic that raged in Attica between 436 and 427 BC was accompanied by strong earthquakes, sea floods, droughts, and crop failures. In Europe, after the eruption of Etna in 1333, the "Black Death"—bubonic and pneumonic plague—broke down a large portion of the population of medieval Europe (approximately 60 million people). In his work, A.L. Chizhevsky noted numerous cases of the relationship between animal and plant diseases and catastrophic atmospheric phenomena [5]. Consequently, most of the global catastrophes known to humanity (floods, glaciations, pandemics, tectonic movements of the crust, etc.), as well as the origin and transformation of the atmosphere, hydrosphere, biosphere, surface topography, and climate, occurred and continue to occur as a result of the ejection of material from the Earth's surface. Meteorites, cosmic dust, and solar radiation have only a minor and insignificant impact on the development of the biosphere.

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