

Celestial Body-Earth

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Abstract

This article is based on the theory of vortex gravitation and physical anomaly of the Earth-slowng its rotation. It defined orbital acceleration, increase in weight, the approach to the Sun, the age of our planet and the origin of planetary material.

Keywords: Theory of vortex gravitation; Celestial mechanics

Introduction

From the earliest ages people believed that the Earth's rotation around its axis and revolves around the Sun has always happened and is happening always in identical periods. Doubts about the constancy of the speed of rotation of the earth arose after the discovery of E. Halley in 1695 secular acceleration of the moon's motion. The idea of the secular slowing 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 last 2,700 years came to the conclusion that the Earth continues slow [1]. There are many causes for the slowing of Earth. These include the gravitational influence of the moon and sun, braking cosmic dust, atmospheric and geophysical processes and many other physical phenomena.

In this paper, conventional explanations irregular rotation of the earth understood as an unproven and (or) is negligibly small. External gravitational influences or atmospheric effects can not only slow, but 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] and the laws of mechanics. For greater clarity, the readers, the next chapter outlines the principles of the theory of vortex gravitation.

Theory Vortex Gravitation

Vortex gravitation theory [2] is based on the well-known astronomical facts-all celestial objects revolve. The most logical explanation of the cause of this movement can be only one-the rotation of celestial objects spawned vortex rotation of cosmic matter-ether. Ether forms a global system of interconnected space vortices. Orbital velocity in each vortex ether (torsion), decreasing from the center to the periphery of the law of the inverse square of the removal. According to the laws of aerodynamics-the slower the rate, the more pressure there. The pressure gradient generates a force pushing towards the zone with the lowest pressure-to the center of the torsion bar. Thus accumulates in the center of the torsion or created cosmic matter of which is generated by a celestial body.

Consider the equation of vortex gravitation theory obtained in [2].

Figure 1 shows forces acting on the body 2. F_c -centrifugal force F_n -attraction force of body 2 to body 1, v_2 -linear velocity of a body in orbit 2, R -radius of the orbit, r_1 -radius of the body 1, r_2 -radius of the body 2, w_1 -the angular velocity of rotation of the ether on the surface of the body 1, m_2 -mass of the body 2.

As already mentioned, the result of motion of the vortex pressure

gradient arises. Radial distribution of pressure and velocity in the ether [2] defined on the basis of the Navier-Stokes equations for the motion of a viscous fluid (gas).

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

In cylindrical coordinates, taking into account the radial symmetry $v_r = v_z = 0 = v(r)$, $P = P(r)$, equation can be written as a system.

$$\begin{cases} -\frac{v(r)^2}{r} = -\frac{1}{\rho} \frac{dP}{dr} \\ \eta \times \left(\frac{\partial^2 v(r)}{\partial r^2} + \frac{\partial v(r)}{r \partial r} - \frac{v(r)}{r^2} \right) = 0 \end{cases} \quad (2)$$

where $\rho = 8.85 \times 10^{-12}$ kg/m³-the density of [3], V -ether velocity vector, P -pressure ether, η -viscosity.

In cylindrical coordinates module gravity

$$F_i = V \times \frac{\partial P}{\partial r} \quad (3)$$

then comparing (2) and (3) for an incompressible ether ($\rho = \text{const}$), we find that

$$F_i = V \times \rho \times \frac{v(r)^2}{r} \quad (4)$$

The assumption № 1

Ether pervades all space, including the physical body except nucleons. Volume V in the formula (4)-an effective volume-the volume of the elementary particles make up the body 2. All bodies are composed of electrons, protons and neutrons. Radius of the electron is much smaller than the radius of the proton and the neutron radius is approximately the same and the last of the order $r_n \sim 1.2 \times 10^{-15}$ m masses of the proton and neutron are approximately the same as $m_n \sim 1.67 \times 10^{-27}$ kg (r_n, m_n -the radius and mass of the nucleon).

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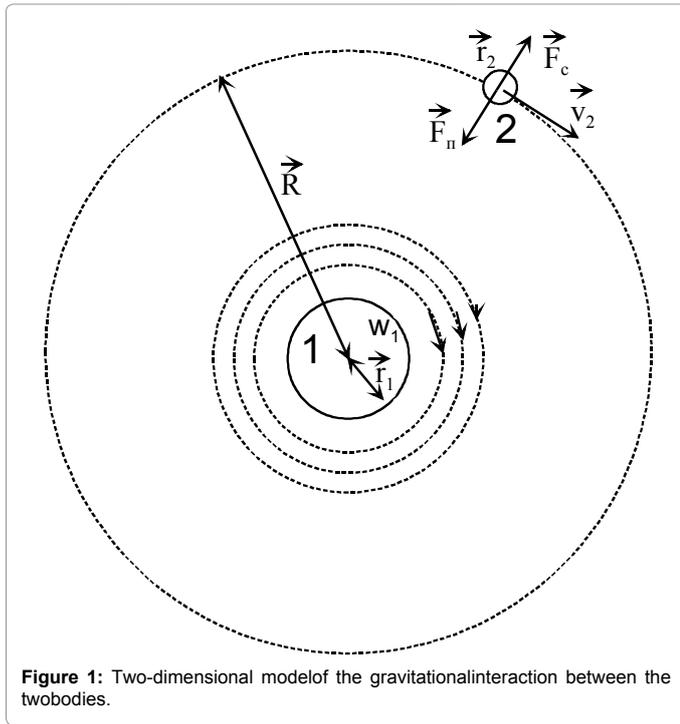


Figure 1: Two-dimensional model of the gravitational interaction between the two bodies.

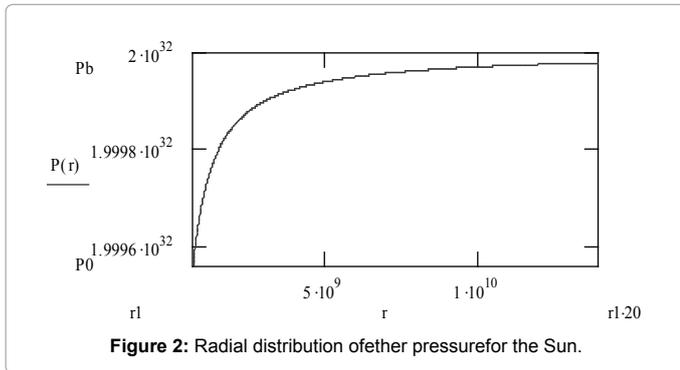


Figure 2: Radial distribution of ether pressure for the Sun.

After the necessary transformations (full payment is set out in the theory [2]) is obtained:

- Equation for determining the force of gravity depending on the rotational speed ether

$$F_i = \frac{4 \times \pi \times r_n^3 \times \rho}{3 \times m_n} \times \frac{w_1^2 \times r_1^3 \times m_2}{r^2} \tag{5}$$

where r_n, m_n - the radius and mass of the nucleon

- Equations for determining the dependence of the pressure on the body surface P_0 , the rotational speed ether

$$P_0 = P_b - \rho \times w_1^2 \times r_1^2 \tag{6}$$

Where P_0 - ether pressure at the surface of the body, using the boundary condition $P(\infty) = P_b$, P_b - free ether pressure

Figure 2 is a graph showing the pressure distribution in accordance with formula (6).

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. Vortex gravity can be regarded as "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 was formed 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 slow 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 .

$$K_t = (24 \times 60 \times 60 + 0.00002) \times (24 \times 60 \times 60)^{-1} = 1 + 2.314 \times 10^{-10}$$

By increasing the time for one revolution of the earth 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

$$K_v = K_t^{-1} = (1 + 2.314 \times 10^{-10})^{-1} \tag{7}$$

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

$$M V_v R_e = \text{const} \tag{8}$$

M - mass of the planet,

V_v - the speed of rotation of the planet,

R_e - the radius of the planet

From equation (8)

$$M V_v R_e = (K_m M) (K_v V_v) (K_r R_e) = \text{const}$$

Where the coefficients K_m, K_v, K_r - show the relative changes in the values M, V_v, R_e .

Hence

$$K_m K_v K_r = 1 \tag{9}$$

Substituting (7) into (9) we obtain

$$K_m K_r = 1 + 2.314 \times 10^{-10} \tag{10}$$

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

$$M \sim V \sim R_e^3 \text{ here}$$

$$K_r^3 = K_m \tag{11}$$

Substituting (11) in to (10)

$$K_r^4 = 1 + 2.314 \times 10^{-10} \text{ or}$$

$$K_r = (1 + 2.314 \times 10^{-10})^{1/4} = 1 + 5.785 \times 10^{-11} \tag{12}$$

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

1. At rotation speed of the Earth surface at the equator $V_v = 465.1$ m/s annual slowdown will

$$465.1 \times 2.314 \times 10^{-10} = 9.3 \times 10^{-8} \text{ m/sec} \quad (14)$$

2. When the radius of the Earth $R_e = 6371000$ m annual increase in the radius of the Earth

$$6371000 \times 5.785 \times 10^{-11} = 3.7 \times 10^{-4} \text{ m or } 0.37 \text{ mm/year} \quad (15)$$

3. When the mass of the Earth $M = 5.9736 \times 10^{24}$ kg annual weight gain

$$5.9736 \times 10^{24} \times 1.735 \times 10^{-10} = 1.036 \times 10^{15} \text{ kg} \quad (16)$$

4. Increased Earth

The surface area of the Earth $S_v = 4MR^2$. Increasing the radius of -3.7×10^{-4} m

Then the volume of the Earth increases by -

$$4 \pi R^2 \times 3.7 \times 10^{-4} = 4 \times 3.14 (6.371 \times 10^6)^2 \times 3.7 \times 10^{-4} = 1.886 \times 10^{11} \text{ m}^3 \quad (17)$$

5. Additional mass density

$$P = 3.456 \times 10^{14} \times (1.835 \times 10^{11})^{-1} = 1883 \text{ Kg/m}^3 \quad (18)$$

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

Mass and Age of the Earth, Orbital and Radial Motion

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

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

No outside forces act on the planet. Therefore, legitimate to use the law of conservation of angular momentum of the Earth around the Sun.

$$M V_o R_o = \text{const where}$$

$$K_m K_{vo} K_{ro} = 1 \quad (19)$$

M -Mass of the Earth

V_o -the orbital speed of the Earth

R_o -radius of Earth's orbit

K_m, K_{vo}, K_{ro} -rate of change in the Earth's mass units, the speed of its revolution around the Sun and the orbit radius

According to Kepler's law $V \sim R_o^{-1/2}$, we can write

$$K_{vo} = K_r^{-1/2} \quad (20)$$

Substitute (20) into (19)

$$K_r = K_m^{-2} = (1 + 1.735 \times 10^{-10})^{-2} = (1 + 3.47 \times 10^{-10})^{-1} \quad (21)$$

Substituting (21) and (13) into equation (19) we obtain

$$K_{vo} (K_m \times K_r)^{-1} = (1 + 3.47 \times 10^{-10}) \times (1 + 1.735 \times 10^{-10})^{-1} = 1 + 1.735 \times 10^{-10} \quad (22)$$

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

$$T = M \times (M \times K_m)^{-1} = M \times (M \times 1.735 \times 10^{-10})^{-1} = (1.735 \times 10^{-10})^{-1} = 5.76 \text{ billion years}$$

Radioisotope dating [4] established the age of the planet size of 4.54 billion years. 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 by considering it as a single physical object increases the reliability of the results.

Annual approaching the Earth's orbit to the Sun

$$R_o \times K_{ro} = 15 \times 10^{10} \times 3.47 \times 10^{-10} = 52.05 \text{ m/year}$$

One revolution of the Earth around the sun (one year) is reduced by:

$$365.24 (\text{сут}) \times 24 \times 60 \times 60 \times 1.735 \times 10^{-10} = 0.0054 \text{ s/year.}$$

Past and the Future of the Planet

Calculation of physical properties in the past and in the future,

1 000 000 000 years ago

The rotation of the planet: Mass of the planet a billion years ago - $1,036 \times 10^{15}$ (kg) $\times (4.76 \times 10^9)$ (s) = 4.93×10^{24} kg

$$\text{Mass ratio } -K_{m-1} = 4.93 \times 10^{24} / 5.97 \times 10^{24} = 0.826$$

$$\text{The relative change Earth radius } -K_{r-1} = (K_{m-1})^{1/3} = (0.826)^{1/3} = 0.94$$

$$\text{From equation (19), } -K_{v-1} = (K_r \times K_{m-1})^{-1} = (0.826 \times 0.94)^{-1} = 1.288$$

Absolute values of the planet a billion years ago, since the velocity of the planet was more than 1,288 times in, Length of day a billion years ago - 18.6 hours

Radius of the planet was less than 0.94 times or

$$R_{-1} = 6.371 \times 10^6 \times 0.94 = 5.988 \times 10^6 \text{ m.}$$

Consequently, the force of gravity was greater in $(0.94)^{-1/2} = (0.88)^{-1}$ times. That is -

$$F_{-1} = 11.1 \text{ m}$$

Handling the planet: Using formulas 20, 21, 22 and $K_{m-1} = 0.826$, we find:

- The relative decrease in orbital velocity (1 billion years ago) -

$$K_{vo-1} = 0.96$$

- The ratio of the radii of $K_{ro-1} = 1.075$

- Radius of the orbit billion years ago

$$R_{o-1} = R \times K_{ro-1} = 15 \times 10^{10} \times 1.075 = 161.25 \text{ million miles}$$

The number of days (18.6 hours) per revolution (one year) - 527 days

After 1 000 000 000 years in the future

The rotation of the planet: Mass of the planet a billion years - 1.036×10^{15} (kg) $\times 6.76 \times 10^9$ (years) = 7.0×10^{24} kg

$$\text{Changing the masses } -K_{m+1} = 7.0 \times 10^{24} / 5.97 \times 10^{24} = 1.173$$

$$\text{The relative change, Radius of the Earth } -K_{r+1} = (K_{m+1})^{1/3} = (1.173)^{1/3} = 1.055$$

$$\text{From equation (19), } -K_{v+1} = (K_r \times K_{m+1})^{-1} = (1.055 \times 1.173)^{-1} = 0.81$$

The absolute values of the properties in the future of the planet in a billion years,

Since the rotation speed of the planets will be less than 0.81 times, then

Length of the day-29.6 hours

Radius of the planet -

$$R_{+1} = 6.721 \times 10^6 \text{ m}$$

The gravitational force $F = 8.8 \text{ m}$

Handling the planet: Using formulas 20, 21, 22 and $K_{m+1} = 1,173$, we find:

- The relative increase in orbital velocity (in billion years in the future)

$$K_{v_{o+1}} = 1.042$$

Relation of orbital radius $K_{r_{o+1}} = 0.92$

Radius of the orbit

$$R_{o-1} = R \times K_{r_{o+1}} = 15 \times 10^{10} \times 0.92 = 138 \text{ million miles}$$

Duration of one turn (one year)-261.2 days

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 $1.036 \times 10^{15} \text{ kg}$ per year (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 gravitation and cosmogony-the substance of all celestial bodies (elementary particles) create ethereal vortices.

Consider the principles of vortex cosmogony.

According to the theory of ether-dynamics [3], the following parameters of the ether:

- Pressure in the quiet, motionless air $-2 \times 10^{32} \text{ n m}^{-2}$
- Ether density $\rho = 8.85 \times 10^{-12} \text{ kg/m}^3$

On the basis of equation (6) at a speed of ether $v_0 = 4.75 \times 10^{21}$. Earth torsion pressure should drop to zero (Figure 2). We define the radius of the orbit of the Earth torsion with zero pressure.

On the basis of equation (5) determine the rotational velocity of the ether on the Earth's surface is $v_e = 1.277 \times 10^{18} \text{ m/c}$. Transform equation (20) -

$$v_0^2 / v_e^2 = r_e / r_0, \text{ where}$$

$v_e = 1.277 \times 10^{18} \text{ m/c}$ -The orbital velocity of the ether on the surface of the Earth

$$v_0 = 4.75 \times 10^{21} \text{ m/c} - \text{ether velocity in orbit with zero pressure}$$

$r_e = 6371000 \text{ m}$ -radius of the Earth

r_0 - earth orbit radius of the vortex, where the pressure is zero (no orbit)

Substituting the known values of v_0, v_e, r_e , define r_0 .

$$r_0 = 0.46 \text{ m}$$

Zero pressure in the Earth's orbit to any torsion means cessation of ether motion on this orbit, which caused reduction (increase) in ether pressure to the initial value in the quiescent state $-2 \times 10^{32} \text{ N m}^{-2}$.

Note. Meteorologists note full tranquility (calm) in the center of tropical or sea storms. These phenomena are called "a storm eye".

The sharp increase in pressure in the central orbits torsion in these areas will create a vortex anti-gravity force directed from the center of the torsion of the orbit with zero pressure (46 cm).

Thus, on the above, the zero orbit the Earth torsion, on both sides, there are two huge forces over the vortex gravitation. From equation (5) determine the gravitational force (F_0) in the Earth's orbit on the torsion bar with a radius of 0.46 m.

$$F_0 = 1.9 \times 10^{15} \text{ m}$$

Two opposite forces of gravity give rise to corresponding compression forces that cause the seal over rarefied ether to super dense state. Thus, in the center of any cosmic torsion created over dense core, which does not pass through it any radiation, including air. In the downtown core-the emptiness resides. At the same time, the core material is impermeable barrier to the orbital rotation of the ether on the orbits of the orbit below the outer surface of the core. When driving close to the surface of the ether in its core flow, turbulence arises, twist and many micro vortices. These micro vortices similar planetary torsion, its own gravity pulls and seals the outer gaseous. In the center of micro-torsions particle density reaches the nucleon density -10^{17} kg/m^3 . It should be noted that the establishment of micro-torsions occur at higher orbits the Earth torsion than the orbit of the nucleus. Vortex gravitation force decreases with increasing orbit. This allows not only nucleons, but also atoms. Continuously generated by the atoms of various substances in the central space of the vortex, generate celestial bodies. Throughout the history of the mega all the heavenly bodies the formation of atoms-continuous. Pouring into the magma, the newly formed atoms constantly "feed" the heavenly bodies more weight. Magma periodically overflowing through the Earth's crust cracks comes to the surface as lava. Geologists estimate the total mass of lava poured out a year tens of cubic kilometers, or 10^{12} cubic meters. The average population density in the order of lava 10^3 kg/m^3 , its mass is measured about 10^{15} kg .

Consequently, the actual mass of lava poured out annually, representing an increase of mass of the planet, according to the proposed settlement. This proves the accuracy of the proposed study on age and change in the physical parameters of the Earth. The mere appearance of the substance (lava) from the depths of the planet proves that the substance appeared in the bowels of the earth, and was not delivered from space. This statement is obvious as meteorites or a space dust can't get in a planet body.

Continuous creation of substance from ether in a planet is possible only at continuous inflow of ether to the planetary torsion. We will determine the volume of ether necessary for creation of 10^{15} kg of planetary substance.

Increase in mass of Earth has to be equal to the mass of ether

from which this additional mass of a planet was created. If we share quantity of annual increase in mass of Earth into ether density, we will determine the volume of ether which annually is required for substance weighing 10^{15} creation.

$$V_e = m/\rho = 10^{15}/8.85 \times 10^{-12} = 1.13 \times 10^{26} \text{ m}^3$$

This volume corresponds to the volume of the ether's torsion with a radius of 1 million km and with an axial thickness of 100 thousand km.

All of the above principles of vortex cosmogony apply to all celestial bodies in our universe. The main conclusion is that the substance is created by cosmic vortices of ether inside of celestial bodies. Moving

the matter in the universe from one celestial body to another has only a minor character and the physical properties of celestial bodies affect.

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