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# The Expanding Earth : The Inflation of Heavenly Bodies Issues Demands a Compression-Free Inner Core

**Explained by Gravitomagnetism**

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**Abstract**

Gravitomagnetism [1] consist of Newtonian gravity and *gyrotation*, which is totally analogous to magnetism. I showed the effect of the attraction and the repulsion of spinning objects. Like-spinning objects engender their mutual repel, and consequently the inflation of heavenly bodies that was suggested by the Expanding Earth Theory. Here, I show that only the heavenly bodies that possess a compression-free inner core can expand. Besides that, the Solar Protuberance Hypothesis for the formation of planets is herewith sustained.

**Keywords**: gravitomagnetism, expanding Earth, solar protuberance hypothesis.

## 1. The inflation of heavenly bodies is caused by reoriented particles under gyrotation fields [2]

### 1.1. The expanding Earth theory

The discovery that the continental drift theory (PANGEA) is wrong and that the Earth is instead expanding, from a small object to the Earth of today, is about to be accepted as a standard. Also Mars is expanding and the Sun as well [2].

### 1.2. The internal gyrotation field of a rotating body [1]

Rotation, and the motion of bodies create fields and forces in addition to gravity. I call this second field *gyrotation*, which is the 'magnetic'-analog equivalence in gravitomagnetism and which is responsible for the flatness of our solar system and of our Milky Way. The gyrotation of a rotating body provides a magnetic-like field that acts internally as well as externally to the body upon moving masses.

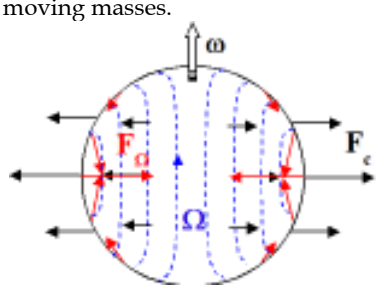


Figure 1. Internal gyrotation equipotentials Ω of a spinning body at a spinning rate ω. Surface gyrotation forces are indicated as $F_\Omega$ and centrifugal pseudoforces as $F_c$.

In figure 1 , the internal gyrotation equipotentials Ω of a spinning body at a spinning rate ω are shown. The gyrotation fields are parallel and oriented like the rotation vector. The surface gyrotation forces are indicated as $F_\Omega$ and the centrifugal pseudoforces as $F_\Omega$ . Herein $F_c$ comes from the Lorentz force, transposed for masses : $\vec{F}_\Omega = m\left(\vec{v}\times\vec{\Omega}\right)$ [1].

### 1.3. The preferential orientation of particles under a gyrotation field

In [1], it was explained that like-spinning bodies repel. This is caused by the external gyrotation field of one spinning body that works upon the other body. Inversely, unlike-spinning particles attract.

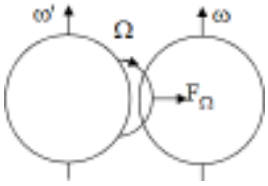


Figure 2. An external gyrotation equipotential Ω of a spinning body with angular velocity ω' creates a repulsion force upon the second spinning body.

Moreover, like spinning bodies standing above each other have the tendency to attract and to stay in line.

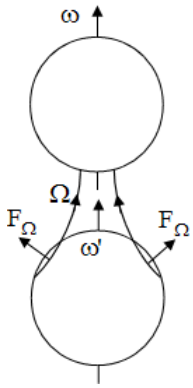


Figure 3. External gyrotation equipotentials Ω of a spinning body with angular velocity ω creates an attraction force upon the like-spinning body that is located beneath and above it.

Inversely, opposite spinning particles will be repulsive. These proprieties are valid for large bodies as well as for smaller particles, as shown in [2]. In order to meet this latter condition, we need to consider particles as being spinning, which is met if we accept the concept of matter that consists of trapped light.

## 2. The Earth structure with a compression-free core

### 2.1. Two models for an Earth structure

Let us consider two possible main models of how the Earth has been formed.

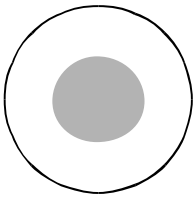

Figure 4 a

Consider in the next figure a mass (in free space) that has been surrounded by a thin shell of water at a certain distance. Indeed, the water will fall upon the mass (core). The more water falls upon the core, the more that core will be compressed by gravity and become very dense. The classical presentation of the Earth shows a solid central core, an overlaying shell of magma, and the final shell of the continents and ocean soils.

Consider now an alternative: a solid shell of mass where in its centre, a quantity of water has been put. The water will be attracted by the shell and be spread over its total inside surface. The more water is inside, the more the shell will be compressed from the inside by gravity. The very centre of the shell will still preserve a net gravity of zero, and will be attracted evenly by the shell in all directions. But the shell, supplemented with the water, forms the gravity attraction core for any object that is located on the outer surface of the shell. The centre of the second model will be compression-free.

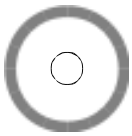

Figure 4 b

There exist evidence for none of both models. The second model for the Earth will be studied more closely below.

### 2.2. Supporting considerations from the Solar Protuberance Hypothesis.

The second model is not impossible at all. The Solar Protuberance Hypothesis for the formation of the planets must provide hollow structures according the following process: a huge electromagnetic solar protuberance (prominence) causes a magnetic equipotential between two points A and B upon the solar surface, in the solar corona. The hydrogen and most of the atoms of the sun are ionized. As a result, the electrons twirl in a very tight helix along the magnetic equipotential from point A to point B, whereas the positive ions twirl from point B to A in a much wider helix along that magnetic equipotential [2]. When the magnetic equipotential disappeared, the helix of positive ions attracted the electrons again and has then been pulled apart by their mutual repulsion into large parts, that became spinning hollow hot proto-planets. As long as the cylinder-like proto-planets were formed of hot, spinning gasses and fragments, the distribution of matter could change a bit, but as shown in paragraph 2.1, there is no significant room for the formation of a central solid core out of the initial hollow proto-planet, due to the zero-gravity that is present in its centre.

When the surface of the planet's shell of the cooled down, as well the exterior as the interior edge of the hot gasses and fragments, there came a moment that the outside shell got entirely closed and could trap all the inside. The crust, together with the internal magma, form the gravitation field that we feel. The very centre of the planet has a net gravity of zero, but all the sides of the shell (magma + crust) attract evenly any mass in its centre. Hence, the planet's centre is compression-free.

### 2.3. Supporting considerations from gravitomagnetism

In the case of a shell-structure for the Earth, there will be a majority of particles inside the Earth's centre that will be oriented like the Earth's spin. This follows from the conclusions in [5], where we discovered that the Sun's rotation is related to the spin orientation of its particles.

Indeed, figure 1 shows the internal gyrotation equipotentials of a sphere, due to its rotation. Figure 2 shows that like-spinning particles are repulsive and figure 3 explains the attraction of superimposed like-spinning particles. Consequently, under the condition of a gravitational-free area in the centre of the Earth, a dilatation occurs due to repulsion, perpendicularly to the Earth spin vector. This results in a density decrease and consequently a pressure increase in higher layers that makes the Earth inflate.

If the Earth would have a core with a high compression, the gyrotation dilatation forces would never overcome these compression forces, and never be able to make the Earth inflate.

## 3. The mainstream Earth structure model

The mainstream model of the earth's structure is ambiguous because it follows the first model of figure 4a, but there is only a weak argument for the origin of the hot magma of its mantle, that is supposed to be created by the high inside compression.

### 3.1. The mainstream layers-model of the Earth

In figure 5 is shown where the mainstream Earth model stands for.

Seismic waves have been send into the Earth and the reflections have been measured. Abrupt velocity changes and reflections of the waves indicate the existence of change of structure, like solid to liquid, or soft to hard layers and vice-versa. The Mohorovičić discontinuity (A) separates the crust and the mantle. The Gutenberg discontinuity (B) separates the mantle and the outer core. However, several discontinuities have been found between the discontinuities marked as (A) and (B) in figure 5. Finally, the theoretical Lehmann discontinuity (C) separates the outer core and the inner core.

In fact, the model could only be verified for a depth of a few thousands of kilometers, but not until the inner core, where assumptions have been made based upon seismic measurements of velocities between the transmitted and the received waves (see next paragraph).

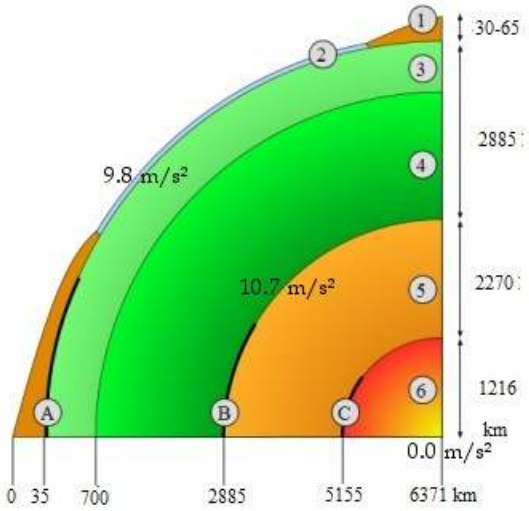


Figure 5. Schematic view of the interior of Earth. 1. continental crust - 2. oceanic crust - 3. upper mantle - 4. lower mantle - 5. outer core - 6. inner core - A: Mohorovičić discontinuity - B: Gutenberg discontinuity - C: Lehmann discontinuity. The expected gravitation field strengths are shown as well.

The mainstream gravitational field strength model inside the Earth is based upon the densities. It increases from 9.8 m/s² to 10.7 m/s² and then gradually decreases to zero in the Earth's centre.

The mainstream inside compression is as shown in the figure 6 below.

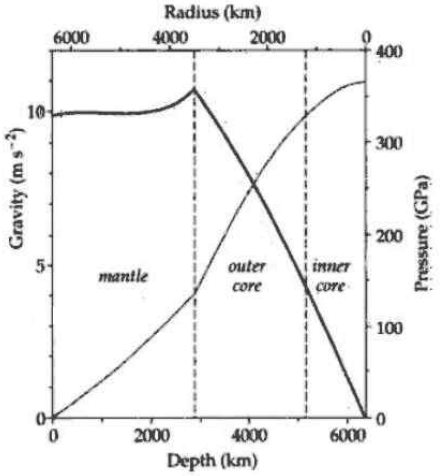


Figure 6. Mainstream compression and gravity graph [6].

These values are deduced theoretically from seismic measurements (see next paragraph).

## 3.2. The mainstream seismic model for the Earth

Based upon the mainstream Earth model, the mainstream interpretation of the found seismic values is given by figure 7.

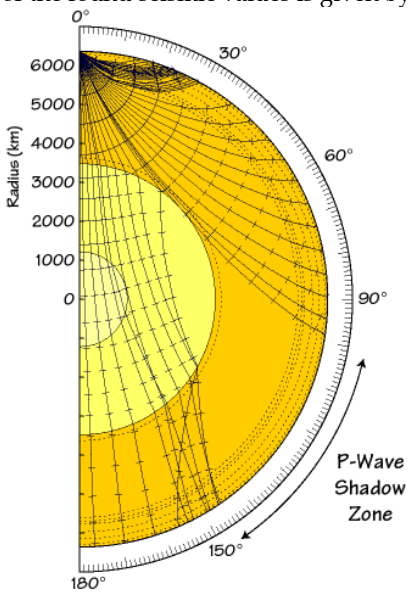


Figure 7. Mainstream interpretation of the Earth's structure by the seismic measurements of compression waves (P-waves) [7]. The shadow zone is occasioned by the refraction index of the transition through the magma.

In reality, the inside Earth's structure can only be deduced by interpreting the transmission time of the wave between sending and receiving (see figure 8).

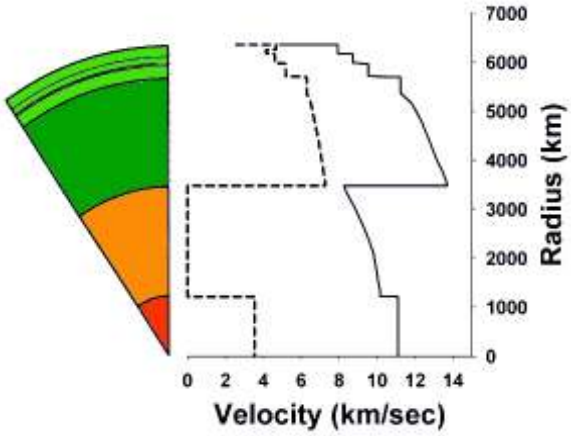


Figure 8. Example of a compression velocity wave (solid line) and a shear velocity wave (dashed line), where the sudden velocity increase at a depth of 5155 km is interpreted as the evidence for a hard iron core [8].

The compression velocity wave is able to pass through liquids (magma) but the shear velocity wave isn't. Remark that the velocity in the inner core is much lower than in the mantle, which confirms a low density of the material. A low density can be obtained by a low-density material or by a low compression of it.

## 4. Discussion and conclusion: is a compressed inner core inevitable?

It is not likely that the Earth has been formed by the model of figure 4a, due to the considerations of the chapter 2. Instead, as well the expanding Earth as the Solar Protuberance Hypothesis are favorable to a shell structure model.

On the other hand, the mainstream inner layer structure is not harming the conditions for an expanding Earth, as far as the inner core is compression-free. Indeed, the presence of a hard inner core is not contradicting a compress-free zone, while using the shell structure model for the Earth.

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