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Earth's Oceans, Creating Tidal Bulges on Opposite Sides of the Planet

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Abstract

An omnipresent, non-local/non-analytical energy that pervades everything enters the Universe through all infinitesimal points. Without determining its origin, our approach is to explain our gravity theory based on Einstein's relativity theory and the behavior of space-time flow. This influx occurs continuously throughout all of space-time, making the universe expand. Our theory presents two kinds of expansion: (PUE) space-time primary universal expansion and the (VME) virtual matter expansion that occurs with the interaction of space-time with the matter. The internal space-time in atoms produces a virtual slight broadening of the matter's atoms. From our frame of reference, we can only distinguish the perturbation that occurs to the (PUE) primary universal expansion if it encounters matter. This perturbation finally is restored by a Gaussian distribution at the spherical environment. We call it the (STD) Space-time accelerated displacement. It is the inertial-gravity field. Thus, matter expands by the superposition of atoms (molecules). The accelerated expansion increases proportionally to the number of atoms that radially constitute matter. The effect is manifested immensely increased in the surface of the stellar objects. Then the surface of the massive stellar objects pushes and displaces the object's external surrounding space-time. The acceleration of the (STD) space-time displacement decreases with the radius squared from the center of mass as it is distributed concentrically. The acceleration we feel at the Earth's surface is permanently fixed, because when space expands, time also proportionally expands. The associated speed (ds/dt) is immersed in the accelerated expansion of space-time; the time base is the same as the acceleration of the PUE (space-time primary universal expansion) (d^2s/dt^2). Otherwise, in a short time, this acceleration and its associated velocity would reach the speed of light. Our theory introduces a different concept: "repulsion instead of attraction". The expansion of space-time produces gravity instead of counteracting it. Finally, we explain using this gravity theory: Earth's oceans, creating tidal bulges on opposite sides of the planet.

1. Introduction

Space-Time is a phenomenon studied in physics and astronomy, that considers space and time are not different entities but single four-dimensional fabric-like structures. In this structure, all the objects are situated and events happen. The expression space-time has come into common use since the theory of special relativity formulated by Einstein in 1905.

There is a general (PUE) primary universal expansion to space-time but this (PUE) undergoes perturbation if it encounters matter. The influx of space-time occurs inside the atoms.

The accelerated general expansion (PUE) also occurs in our reference frame. We are immersed in that "general expansion" making us not observe it.

All the space-time influx arising interatomic produces a virtual broadening to the atoms in matter. Although the phenomenon occurs in all matter, we are considering objects with a large amount of mass, such as stellar bodies, since for the amount of space-time and mass in things of our daily activity, this broadening is negligible compared to the broadening of the massive objects.

The broadening is related to the object's matter. The virtual broadening by atoms' superposition increases relatively as it approaches the surface as a function of its density, being the acceleration larger near the Earth's surface. We do notice it because of the inertia it causes.

Gravity is neither a force of attraction nor a push force. The surface of the Earth supports me; that is the inertia called weight.

The weight is the inertia due to the virtual acceleration we receive from the increased and accelerated virtual expansion caused by the mass, the inertia that appears in the mass of the bodies when they are subjected to change their state of rest by the force of push caused by the virtual broadening of matter.

Scientists are likely to ipso facto reject this theory of gravity since it indicates a rather significant expansion at the surface of massive objects like the Earth, which is not seen, only felt. But quantum behavior must be taken into account, the expansion occurs in the appearance of time, and at the present instant that has no differentials is at the intersection of quantum mechanics and general relativity. The process of decoherence collapses permanently creating time together with the expansion of space.

In fact, there are studies with precise measurements made with the French DORIS satellite system, the study presented by Shen W-B, where the negligible expansion of the earth is confirmed (Shen, 2011).

However, the following Basic Concepts and Considerations should be taken into account before deciding to discard this idea:

Understanding is important when proposing new scientific theories and ideas.

When we said space expands, it is clear that there is an enlargement of space magnitude.

When we say that space-time expands, time also expands proportionally; but we cannot refer it to a velocity because, in the expansion where space and time are incorporated, it is not possible in Classical Physics to establish a relation. The derivative of position with time is the velocity ($v = ds/dt$).

Similarly, it is not possible from classical physics to derivate the term to obtain a magnitude of acceleration. The derivative of velocity with time is acceleration ($a = dv/dt$).

The only thing that is within our reach is the inertia that produces the phenomenon from quantum mechanics behavior.

This perturbation, the flow process that pushes and bends or deforms outer space-time, is restored by a Gaussian distribution, a phenomenon that we know as Gravity.

Space expands, and time also proportionally expands. The associated speed (ds/dt) is immersed in the accelerated expansion of space-time; the time base is the same as the acceleration of the PGE (Space-Time Primary Universal Expansion) (d^2s/dt^2). In a short time, otherwise, this acceleration and its associated velocity would reach the speed of light.

In addition, the acceleration we feel at the Earth's surface is permanently fixed, because the space-time accelerated general expansion also occurs in our frame of reference.

Quantum mechanics define the state of the universe's growth and events are framed in time. For time to exist, there must be an expansion of space. In the expansion is the origin of time.

The time comes incorporated in the space-time flow, so the origin of time is now, the present. The expansion is given in greater proportion according to the mass of the bodies. For example, the Sun has a greater expansion than the Earth, and that expansion produces a greater push to the space-time around the Sun than the one produced by the Earth around it. This greater expansion of the greater celestial bodies is not noticed in the distance that separates them because when producing a greater push to the space-time around, it makes that the distances of the expansion are not perceived.

However, all this is relative to the general expansion; everything refers to the same time (dt^2), which expands in an accelerated form. The velocity in the expansion phenomenon breaks with the mathematical and physical perspective. Special relativity was published in 1905 and explains how motion and speed are always relative to the observer's frame of reference. The theory connects measurements of the same physical incident as seen from different points in a way that depends on the relative velocity of the observers. On the way to successfully formulating a theory of relativity applicable to relative velocities, our approach is a natural and logical extension of Einstein's theory of relativity. This can be achieved, as well as how the equations of motion might operate in such regimes.

Time is a by-product of space, as explained by the general theory of relativity (space-time). Its origin is in the present thanks to the perennial accelerated expansion of space-time, causal of gravity, as we have pointed out.

Thus, the accelerated matter broadening perception has a virtual increasing magnitude that acts affecting space-time and the surrounding masses (Gravity).

Gravity is not opposed to expansion as understood by current science; it is the expansion itself on a large and small scale (Thalman, 2023a).

In the description, we will see the reason for the two tidal bulges in the Earth's oceans (Figure 1).

2. Fundamentals

Einstein's first law, In contrast to classical mechanics, did not consider gravity to be a force. Thus, objects in free fall are indeed free—no force in the classical sense acts on them. Objects in free fall follow geodesic curves in space-time.

The approach of this study is in accordance with hydrodynamic gravitation and expanding Universe. This work intends to recognize and understand the actual laws under the flux behavior of space-time. The acceleration of space-time is the result of simultaneous accelerations caused by the influence of kinetic energy, the translational movement, and under and space-time acceleration due to the acceleration of the (STD) space-time displacement pushed by the (AME) apparent matter expansion.

Here are the basic concepts of the theory of relativity in low-velocity motions, far away from C, the speed of light. The simplest example is to throw a ball upwards. First with classic physics analysis and then according to the general theory of relativity.

It can be seen as the union of two uniformly accelerated movements (Figure 2): one upward and the other downward.

During the vertical launch, the ball will reach the maximum height point where the velocity is zero. The ball in all its path is momentarily suspended, just before starting the descent, always in free fall.

The ball launched upward to a certain height requires a specific initial velocity also determined. It will leave behind the initial launch point in its free fall and continue its downward trajectory. When the object passes through the launch
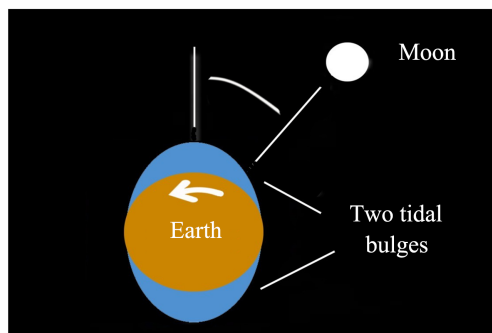

Figure 1. Two tidal bulges.

Figure 2. Vertical throwing of a ball.

point, its velocity will take the same value it has when the ball was launched but the direction is the opposite.

In this motion, the acceleration, always downward, is the gravitational acceleration approximately (9.8 m/s^2).

Relativistic-ally, Oriented with Einstein's relativistic laws (Einstein, 1920).

If you throw a ball, it will fall because of the broadening of the Earth. That is because of the acceleration of the Earth's surface towards the ball.

From the moment the ball is released after being propelled upward, it experiences no force is at rest, in free fall even though its initial motion is upward.

The ball follows a trajectory previously determined according to its kinetic energy and by space-time accelerated flux.

Before throwing the ball, there is already an acceleration that pushes you upwards with the ball, you feel it by its weight. You give the ball an initial velocity upwards concerning an undefined relative virtual velocity caused by the acceleration of the perception expansion of the Earth's broadening.

Space-time is moving upwards faster and faster, pushed by the Earth's surface. The ball is at rest, it only sees what is happening around it. There is no union of two uniformly accelerated motions; it is just one. While the ball is in free fall, the Earth's surface is approaching at an accelerated rate, and due to the STD Space-Time Displacement, the ball sees the space coming up. With a final crash that does not happen when there is an orbiting free fall (Adler, 1978).

An object in free fall is at rest. Therefore, gravitation does not cause it to accelerate and always has zero acceleration. In free fall, the acceleration is by coordinates. The object will experience coordinate's acceleration but no acceleration of its own and thus no "g" force. There is no force of attraction; the object in free

fall does not accelerate; it is the approach of the earth or its coordinates approaching it at an increasing rate.

In this and all the cases, the curvature of space-time is like a fluid that moves for two reasons: by the push of the surface of the massive bodies and by the push of the mass by the movement, even if it is small (kinetic energy), is the vector resultant of this flow. Kinetic energy influences the curvature, at field equations, it is part of the component of the Einstein stress-energy tensor. (In our theory we call it expander).

Space-time is the incompressible fluid that expands permanently not only by its (PUE) Space-Time Primary Universal Expansion but also pushed by the energy outflow on the surface of the matter (VME) Virtual Matter Expansion and by its matter translation kinetic energy. Any massive object that is situated in the space-time continuum distorts the space-time continuum around it.

Space-time as a fluid pushed not only by the gravitational effect of the stellar object but also by their kinetic energy motion facilitates the knowledge of geodesic behavior, as their elliptical orbital trajectories.

In the cases of free fall or orbit, if objects come with a translational velocity or not, what happens in the expanding curved trajectories is that these bodies follow lines that do not affect their stable state of inertia (Inside a fluid medium with different accelerations). In all astronomical objects, the effect of the broadening is because of the virtual matter's expansion.

In the case of the upward ball, there are only vertical vector components, and the (STD) Space-Time Displacement always refers to accelerated expansion.

Let us now consider the ballistic case, where there is a transverse component to the push of space-time that is vertical. In relativity, the curvature of space-time is the same parabola. The ball's translational velocity affects the curvature of space-time. The same happens to light as a wave with propagation energy.

The elements follow a geodesic trajectory. The elements always believe that its motion is in a straight line. That is how the curvature of space-time presents it.

A geodesic curve is the space-time generalization of a straight line. The usefulness of geodesic curves in GR is that they are the paths followed by particles in free fall.

Very different is an object on the surface of the earth. Even we, sitting in a comfortable armchair, are not in a state of rest.

We are being pushed upward at an accelerated rate by the surface of the earth, and by the inertia of our mass, we experience our weight (Figure 3).
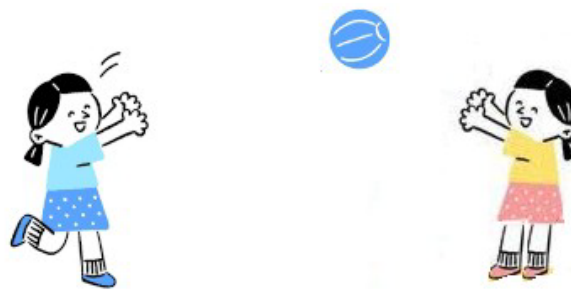

Figure 3. The parabolic curve is due to the expansion of space-time.

2.1. Recapping

1) The whole universe is expanding, but we cannot perceive it because we are immersed in it, only observed this expansion by means of gravity. Velocity ds/dt is impossible to define because both terms arise in expansion simultaneously.

The universal accelerated expansion of space-time permanently in a virtual form expands every element of matter. By atomic-molecular superposition, matter expands, and the object's volume increases relativity.

2) The matter expansion is more accelerated toward the object's surface, and its mass pushes the adjacent outer space-time around it, producing the space-time curvature.

The only expansion we feel or observe is the upward push of the ground caused by the virtual expansion of space-time to matter (inertia) and in free fall by the STD Space-Time Displacement when the Earth's surface is approaching at an accelerated rate.

There is no force on bodies in free fall. Bodies in free fall follow a straight trajectory according to the space-time deformation. As explained by Einstein in his theory of general relativity (Einstein, 1920).

Inside a space station, astronauts do not experience any force; because on a satellite, they are in free fall.

In its totality, each sky object is in free fall. Thus, the Earth, the Moon, and the Sun are in orbit.

For example, in the Moon's path, space-time is curved; but Moon moves in a straight line as it is perceived by it. There is no force acting over the Moon in a geodesic curvature, a free fall result of the pushing of space-time by its expansion and to the Mon inertial motion. It is a space-time flux accommodation.

The same phenomenon is experienced by the satellites around the Earth, the planets around the Sun, the Solar System orbits around our Galaxy, and our Galaxy is falling into a large cluster of galaxies called the Virgo Cluster. All these orbital systems are in free fall; the curvature of space-time makes their trajectory. This curvature is the vector sum of the components that make up the final fluid motion of space-time.

It should be noted here, for example, that in the planetary system, each element contributes to this resultant not only by the thrust of its energy of motion but also by its own virtual expansion.

A body in free fall experiences no force.

When an object is present in this space-time fluid, it makes a vector component, according to its kinetic energy.

In free fall, when an object is not in orbit, relatively, there is an increase of velocity in the space-time coordinates around it. It is at rest, and the object has no inertial effect. (Considering that there is no friction with the air).

From the point of view of relative movement, it is the same as saying: I go to space that space comes to me (Falling).

2.2. Weight Is Inertia

The matter has mass, which maintains its stable state of inertia (the property possessed by bodies that oppose a change in their state of rest or motion in which they are).

Due to the matter's virtual broadening, it is accelerated; it pushes the objects on the ground's surface, which produces the weight.

In the case of being in flight, we are supported on the floor of the aircraft.

If we are over the Moon's surface, as this acceleration is lower due to less mass in the broadening process, it produces a lower weight.

Normally people call Gravity their effects. For example, the weight. The weight of the bodies is the inertia that appears in the mass of the bodies when they are subjected to change in their state of rest.

It is an accelerated displacement to space-time coming from the addition by superposition of the expansion acceleration of the space-time inside the atoms in the function of the mass and its density (Quantity of atoms and their structure).

This gravitational study considers that the gravitational pulling force does not exist; instead of being of attraction force by which things are pulled towards each other, gravity is a push caused by the space-time expansion to matter.

The principle of equivalence is the equivalence between gravitational and inertial mass. This principle served Albert Einstein as a starting point for developing his theory of relativity. Likewise, this gravitational theory uses the equivalence principle as only one inertial mass phenomenon (Ohanian, 1977).

Physicists have gathered evidence that space-time can behave like a fluid. This relationship is not a coincidence, so space-time, as a fluid, can have a substructure (Hossenfelder, 2017).

That helps us to understand this phenomenon clearly. We are in accordance with hydrodynamic gravitation.

Space-time must be analyzed by means of fluid dynamics, a classical point of view that simplifies its understanding because it is a kind of fluid (Santos-Pereira, 2021).

To consider space-time as a fluid pushed not only by the gravitational effect of stellar objects but also by their kinetic energy motion facilitates the knowledge of geodesic behavior, not only of their elliptical orbital trajectories but also of the geodesic trajectories followed by light due to the contribution of its propagation energy. And it adequately represents all known gravitational.

Thus, matter expands by the superposition of atoms (molecules). The accelerated expansion increases proportionally to the number of atoms that radially constitute matter. With Avogadro's number, it is possible to determine the radius of an atom from its density and atomic weight.

The energy broadening increases as it approaches the object's surface by superposition as a function of the density of matter.

Thus, the broadening is greatest near the earth's surface.

The earth ejects space-time through its surface at an accelerated rate of 9.82 m/s^2.

Indeed, according to my calculations at 2.15 Å, there is an expansion of space-time of 3.3×10^{-16} m/sec². Our estimates were based on the expansion of the Earth's surface. But due to the broadening of matter, the result is close to the reality observed by cosmologists. This makes it possible to associate the expansion of space-time with gravity.

The effect is manifested immensely increased in the surface of the stellar objects. Then the surface of the massive stellar objects pushes and displaces the object's external surrounding space-time. This virtual broadening of the massive celestial bodies affects their spherical environment. It is gravity and gravity field. (STD) The space-time accelerated displacement.

The (Inertial-gravity) potential energy pushes the spherical contour of the space around it (Gaussian diminishing), the virtual expansion of the surface of the objects displaces space-time. In the same way that translating objects displace space-time as they pass through.

This is the case of the relationship between potential and kinetic energy.

Being a fluid space-time accommodates itself.

Motion is always relative to the observer's frame of reference to which we refer for conceptual ideas.

The speed of light and inertia are references in our space-time.

The speed of light has the same definite speed for any observer, regardless of the relative motion of the source.

Reference systems at rest or with constant velocity are inertial. Gyroscopes are an inertial reference, they are devices that allow to measure or maintain orientation in space when motion occurs in a vehicle or element.

Inertia and light also have something in common: light cannot be seen if there is no mass (refraction), likewise, inertia only manifests itself if there is mass. Now it is interesting when we say that Gravity is Inertia.

3. Description

You may have seen how the sea rises and falls a few meters twice a day on a beach or coastline. The reason is found in the two closest stars to our planet: the Moon and the Sun.

Tides are regular or periodic variations in the sea level of the order of a few meters. This modification in the sea level occurs daily at a certain coastal site. But seen from a distant point, two opposed protrusions of water are observed on the earth regardless of their rotation. Fixed bulges depend on the position of the Moon where its amplitude or size is a function of the position of the Sun.

Earth's oceans, creating tidal bulges on opposite sides of the planet.

To begin with, I have illustrated (in the following link) a short video of the phenomenon that I see every day on the Pacific coast here in Costa Rica. The video explains the location of the two perennial high tide bulges on both sides of the Earth's ocean.

As this is an introduction to the subject of tides and water levels we will focus most of our attention on the effects of the stronger celestial influence, the Moon.

In the figures, the tidal bulges in the ocean are exaggerated, not to scale as well as the distance from the moon, to show using a better explanation of the centrifugal effect and gravitational inertia on each side of the Earth. The short video I have uploaded to my YouTube account so that you can watch it at the following link (Thalman, 2023b).

When I retired, I went to the Central Pacific mangroves of Costa Rica. For 15 years, I served tourists by showing them the wonders of the mangrove ecological system produced by the tides.

Due to the need to know the timing of high tides filling the estuaries, I had the opportunity to study the gravitational behavior caused by the massive elements of the Sun and especially the Moon on the amount of water mass in the ocean.

It caught my attention when I saw that two tides occur daily. And especially when the high tide occurs with the Moon and Sun on the opposite side.

The gravitational effect exerted by the Moon, and to a lesser extent by the Sun, produces two ellipsoid-shaped bulges of water mass, one on each side of the Earth.

In the Earth's ocean, there are always two tidal bulges of water, one on the side of the Moon and one on the opposite side of the Moon. After many years been thinking about it, this is the correct answer.

The two bulges remain aligned while the Moon as Earth rotates. Within a phase shift of about 30 degrees. The lag of approximately 2 hours is inertial, the time required for the water to accommodate, always happening.

If you are standing on the shore of the beach and you see the moon at the zenith above your head, you should wait for the earth to turn about two hours, later you'll see the moon shifted to the west about 30 degrees and you will see the tide at its highest point.

Some believe that the gravitational pull of the Moon on the Earth and the force of the Earth's rotation are the two main factors that cause the high and low tides, but that is not true.

If we disregard the influence of the Sun and the rest of the planets, we can say that the Earth and the Moon move in circular orbits around their common center of mass. That is the reason. Let's explain (Figure 4):
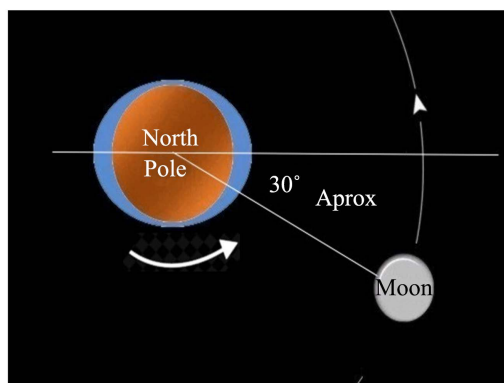

Figure 4. The two bulges remain aligned while Earth and Moon rotate.

Let's calculate the center of mass of the Earth-Moon system with the following Earth-Moon system data:

- Earth mass, Em = 5.98 * 10^24 kg.
- Earth radius, Er = 6370 km = 6.37 * 10^6 m.
- Moon mass, Mm = 7.34 * 10^22 kg.
- Moon radius, Mr = 1740 km = 1.74 * 10^6 m.
- Distance between the Earth and the Moon, d = 384,400 km = 384.4 * 10^6 m.

The position of the center of mass of the Earth-Moon system is between the center of the Earth and the center of the Moon at a distance r from the Earth center, as shown in the figure (Figure 5).

The Earth and Moon orbit their common center of gravity which is located inside the Earth but not at the center. In a way, the Earth-Moon system is a binary planet.

Please see in the following video the Earth's orbit as influenced by the Moon:

Center of mass Earth-Moon system video (Thalman, 2023c).

The Earth has three movements: one of rotation that gives the days, one of translation around the Sun that gives the years, and this one where the Earth revolves slightly around the Moon.

The white point inside the Earth (video) is the center of mass of the Earth-Moon system. Just as the moon revolves around the Earth every 28 days, so does the Earth revolve around the white spot.

3.1. Why Two Bulges on Tides?

From the classical Newtonian point of view, we would say:

One bulge is formed where the side of the Earth and the Moon are closest together.

On the "near" side of the Earth (the side facing the moon), the gravitational force of the moon pulls the ocean's waters toward it creating one bulge.

On the far side of the Earth, the other where they are farthest apart. Moon translation inertia dominates, creating a second bulge.

On the whole globe, (gravity-inertia) and (kinetic-inertia) are in relative equilibrium. As water flows, the two bulges remain aligned with the Moon as the Earth rotates.
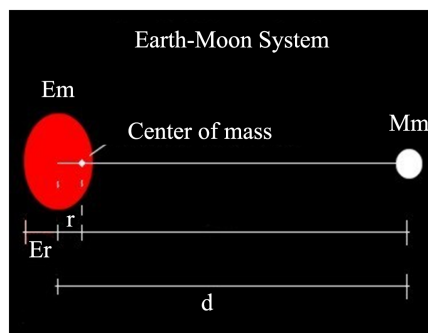

Figure 5. r = d * Mm/(Em + Mm) = 4.656×10^6 m.

The centrifugal force of the earth's spinning speed to the opposite side of the moon is what produces the other high tide in the ocean. The White spot inside the Earth is the center of mass of the Earth-Moon system.

In our theory, we have to remember that Gravity is inertia.

(Gravity-Inertia) and (centrifugal-inertia) produce the Two Bulges.

When you see a high tide and the Moon at the same time, you are on the "near" side of the Earth (the side facing the Moon), the bulge is due to the push of the Moon's (gravity-inertia), and on the "far" side of the Earth, and the (centrifugal-inertia) dominates, creating a second bulge.

On the side of the Moon, the centrifugal force is less, but lunar gravity appears.

In this way, the combination of gravity and inertia creates two bulges of water.

Due to Gravity is inertia, both bulges are created by inertia, although the reason for their formation is different, however, the two high tides are similar, there is a balance, indispensable in the daily rotation of the earth.

Inertia manifests itself in two ways: By the kinetic energy of translation of the moon and by its virtual expansion. It is a one-to-one relationship that bends space-time.

The kinetic energy referred to here is not that of rotation but of translation.

Do not be confused about the daily rotation of the Earth producing a bulge. It is an equatorial uniform and permanent ring around the Earth.

The moon's orbit around the Earth is not due to any attraction. This orbit results from both expansions, the (PUE) space-time primary universal expansion and the (VME) virtual matter expansion, in addition to the kinetic energy of the moon's translation.

Just as the Moon revolves around the Earth, the Earth has a smaller-scale spin around the Moon. Both celestial bodies are in free fall. There is a swing of kinetic energy that affects the total inertia of the set Earth-Moon in free fall over the Sun.

The Earth and Moon are in free fall, each one as a whole; however, you or any object on the surface of the Moon or Earth are subjected to a push by the virtual expansion.

The same occurs with the ocean tides. We observe that the two bulges exert an inertial equilibrium in the Earth's rotation and its geodesic trajectory.

The curvature of space-time is also affected by the effect of the sun and, to a lesser extent, by the planets and their translational energy.

Let's change the words (gravitational attraction) to gravitational inertia, under our theory explanation: Inertia due to the expansion of the Earth and Moon, and inertia due to the translation of the moon around the Earth.

We are immersed in two expansions: the (PUE) primary universal expansion of space-time and the (VME) Virtual Matter Expansion, pushing the surrounding space-time in an accelerated form.

The virtual enlargement of massive celestial bodies affects their spherical envelope, which has been called gravity and its field.

So, Inertia is due to the expansion of the Earth and Moon, and inertia is due to the translation of the moon around the Earth.

So the bulge that appears on the Earth's Moon side is because of the permanent accelerated push between both celestial bodies, the (VME) Virtual Matter Expansion. It is the inertia that attempts to keep the water in place.

And celestial bodies do not disintegrate due to the space-time (PUE) primary universal expansion.

Under its references, all points of view are correct; therefore, I do not wish to contradict either Einstein or Newton, rather I admire them, so much so that, I had the opportunity to visit twice Newton's tomb in Westminster Abbey, London, UK despite living in Costa Rica Central America.

3.2. Interesting Remarks

1) I have observed that the gravity effect of the two masses is more significant when the masses are opposite, that is when the Earth is between the Moon and the Sun. At (the new moon), the solar thrust is a little smaller, whereas, at the full moon, the two push produce stronger inertia (slightly higher tides). The fact is that tides are higher when the two luminaries are on opposite sides of the Earth and not when the Moon and the Sun are on the same side of our planet.

There are several tides prediction programs. You can use the following one to analyze tides:

Ocean tides Thanks to WX tide ** WXTIDE32.COM ** A tide and current prediction program (Flater, 2017).

2) The tides are not noticeable in the Mediterranean because it is a closed sea with only one entrance through the Strait of Gibraltar. This small passage cannot absorb a large amount of tidal water from the Atlantic Ocean. This large volume of water is retained in the strait but creates a strong current of water unable to fill the Mediterranean during the tidal cycle. During the ebb, the opposite occurs and a strong outflow is generated in the Strait towards the Atlantic.

As the Mediterranean Sea is small, the effect of the Moon's attraction on this small expanse of water and the tidal amplitude it forms is centimeters and therefore insignificant for observation.

3) The effect of inertia due to the Earth's rotation is the same throughout the equatorial ring. But there is no water circulation because the water cannot pass because the continents are located from north to south. If there were a water channel in the equatorial ring, we would have a flow of water to the west. This happens in the atmosphere's general circulation patterns.

4. The Time

Our concern in this theory is not the principle but the origin of time. Time is produced as space expands. Therefore, for time to exist, the space of the Universe must expand. Time originates in the present and expands along with space-time, where events are framed. Time is continuously created; it exists from the present

and, as it passes, it is more extensive; its magnitude is more significant and considerable, as demonstrated by history (Thalman, 2023a).

Space-time emerges with its continuous expansion in a continuous present time throughout the Universe. As space expands, new time appears (Thalman, 2023a).

Our Dimensional reference to explain gravity is based on the fact that the origin of time is the present. Based on quantum theory, an omnipresent, non-local/non-analytical energy that pervades everything enters the Universe through all infinitesimal points. This influx occurs continuously throughout all of space-time, making the universe expand.

People mistakenly ask: "How fast is gravity?". There are two main erroneous propositions: that gravity is infinitely fast or as fast as the speed of light.

No one is correct, although from the non-relative point of view, it is infinitely fast, gravity is an inertial effect due to the virtual expansion effect of the masses. It is a phenomenon present throughout the universe.

This makes the Quantum Dimension instantly linked and connected.

Before the present everything is together, there is no time, only information from the past.

A photon is everywhere, it does not move. It is with decoherence that time begins, so we can speak of information framed in time. The same happens with the Inertia that produces the "fields" product of time, posterior to the present. Same as the electromagnetism, all that correspond to the past time.

Even the notion of time inserted in space in its creation can take an objective value. We live in the present.

We live in a time in which the decoherence process permanently collapses with our presence. Expansion occurs together with space. Space-time is always there with all the information to act and create the new scenario. Space-time is intertwined; that is, our Universe exists from the present.

The entanglement phenomenon can be explained by the non-analytic state of non-locality. Quantum physics allows for all the energy in the Universe to become a single universal emergent system that produces time in the present before us in 4D space-time. So far, it has been called dark energy since scientists do not know what it is.

Intervals measure the time of our Dimension. For example, clocks measure seconds, minutes, and hours while the present moment has no interval. The present moment is not a clockwork phenomenon. You can see that your daily life happens entirely in the present moment. It is always there, constantly renewing itself, immeasurable and fleeting. Because the moment you try to capture it, it disappears.

Once time has been created, it is not absolute. The speed of light is our unique reference. Everything else is relative. Time is relative; it originates in the present and extends at different expansion rates, affected by gravity and the velocity where the clock is located (The measure of the time interval). Time dilation depends on the gravitational field. We live in a moderate gravitational field on the

surface of the Earth, so it turns out that we are subject to time dilation without realizing it. Time passes faster the farther one is from the Earth's surface. Therefore, the time interval measured at a given point near the Earth's surface is greater since the acceleration of space-time is greater at that point. Gravity (acceleration of push to space-time) varies as we go up, and it is slightly weaker on the top floor of a tall building than at ground level, so the time dilation effect is also weaker at higher altitudes. Near the Earth, the acceleration of space-time is greater, so the time interval measured is greater. Since Gravity is lower, the higher you are above the surface of the Earth, the shorter the time interval measured, which means that time passes faster since the time intervals are shorter. Although the effect is too small to detect with human senses, the time difference between different altitudes can be measured using extremely accurate clocks. Time Lapse and Time Flow Time is a dimension of "space-time", and with all of space-time, physics also treats time as a "flow". It is an important aspect that we consider to explain the phenomenon of Gravity. If we consider the flow of time in the present, then intervals or time lapses imminently constitute the past. According to the theory of relativity, a time-lapse or time interval is the amount of time that elapses between two events, as seen by observers at different points in space-time geometry, which we accept and agree upon. As the flow of time is greater, the intervals of time measured by clocks are greater; that is to say, that time dilates. This phenomenon is known as "time dilation". The flow of time is inversely proportional to the passage of time. In other words, time passes more slowly if the flow is greater. The greater the gravity, the greater the flow of space-time by the push of the matter expansion. The present time is not necessarily an instant but the first intervals of the origin of time. We identify the beginning of time as the flow that emerges in the present with the accelerated expansion of space-time. Therefore, the current present time is an interval of time "Δt", the immanent and transcendent principle of all things (Thalman, 2023a). In the four-dimensional view of the universe of Special Relativity, time and space merge into a continuum called space-time. There is a flow of time as space expands. And then, time passes, framing all the events that happen in decoherence.

Time does not flow the same for everyone. It is a flow that is not regular and changes according to what we call gravity and the velocity of the point in the geometry of space-time. What is a fact is that gravity and velocity affect time: 1) Time dilation by gravitation: The flow of time is faster where gravity is stronger. 2) Contraction of time by velocity: The flow of time is slower for someone who is in motion than for someone who is static. Oscillating systems, such as GPS clocks, have their natural resonant frequency, independent of gravity or velocity of the location. But the change occurs in the measurement of the time segment, depending on the flow of time in the observer's frame of reference according to the dynamic characteristics of the space-time where the clocks are located. The present is not necessarily an instant, but the first intervals of the origin of time.

One thing is the Beginning of Time, and another is the Origin of Time. The beginning of time is the uncertain idea of the Big Bang. However, science shows

that the Universe is continuously expanding; that assessment led scientists to believe there was a beginning, with a Big Bang Nucleosynthesis. The expansion of the Universe, or Hubble expansion, describes it as spatial dimensions that appear to grow or extend continuously (Thalman, 2023a).

In particle entanglement, particles manifest themselves in space at the origin.

All the possibilities of what can happen are present, thanks to the past. But, as we have seen, all events are framed thanks to the expansion of space-time. The chances of options are there, but not the impossible. The before now is a probabilistic creation that depends on past events. What is done now affects the possibilities of what can be established in the next present.

In particle entanglement, particles manifest themselves in space at the origin.

We live in a time in which the decoherence process permanently collapses with our presence.

A permanent event, given the continuous creation of time in the present and the accelerating expansion of our Universe. Our Dimension has no central point; everything can be considered the center of the Universe, such as yourself.

Then, for time to exist, the space of the Universe must be in continuous increase, that is, in expansion. Time exists thanks to space and the necessity of the motion of the Universe, whose velocity links space with time. Space is dispersed, not from a specific point, but everywhere and in all directions. The present is the only moment in the entire Universe that is simultaneous. From the present, time and space expand at a different rate according to the associated mass.

5. Conclusion

The scientific revolution brought about jointly by Einstein's theory of gravitation and quantum mechanics led to a profound transformation of the fundamental concepts of physics.

It is in quantum space-time where time and its expansion originate, so we feel the effects of inertia coming from a virtual broadening.

I hope this article has explained not only the reason for the two tidal bulges but also to be able to affirm that gravity manifests itself in Inertia. Newton's and Einstein's Gravity theories do not contradict each other. There are more advanced concepts under their point of view. Some more advances can be found in additional concepts that seem to work.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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