International Journal of Engineering and Technical Research (IJETR)
ISSN: 2321-0869, Volume-2, Issue-7, July 2014

# Acceleration due to the motion of the Planets inferred as Gravity

**C.Prabhakar**

***Abstract*—Gravity may not be due to the attractive forces of masses with one another. But, may be due to the motion of planets both its rotation and revolution together with different or same rates of motion between them. Any point on the Planet traces the equation of a cycloid by its rotation and revolution motion, with the equation of cycloid we can show that acceleration due to gravity is acceleration caused by the two motions of the Planets, not due to the attractive forces of the Planet.**

***Index Terms*— Gravity, Cycloid curve, Acceleration due to Gravity**

## I. Introduction

The definition of Gravity, Time and Space Changes after every new Idea. Now, one of the Ideas which may change the way we interpret the possible reasons of Gravity effect.

## II. History

As we know it was interesting story that once when Newton was sitting under the tree, apple fell on his head, then idea flashed to him that Apple could fall means, Earth is attracting everything. Later, by careful Observation he propounded the law of Gravitation. He extended attracting force to heavenly objects as well. Many scientists around the world made discoveries, theories based on this idea of Gravitation. But, no one could predict from where this Gravity comes from. Many scientists tried to correlate it to electrostatic force of attraction. But,failed. Many Experiments were undergone even before Isaac Newton. Galileo made two masses of different weights to fall from certain height, contrary to everybody's belief he noticed that without air resistance both fell at the same time. This means Earth's acceleration due to Gravity is same for all the small as well as large masses. We have one more option that body does not have any Gravitational Attraction at all, it is only due to the motion of planets. That's why it does not depend upon the small or large masses and both fall at the same rate. Objects thrown upwards falls down thought to be due to Gravity may not be due to the attractive force. But, due to the different or same rates of rotation and revolution motion of the Planets. As it said there is no difference between acceleration caused by Gravitation and acceleration from any other moving sources (Principle of Equivalence).Then why not acceleration from any planetary movement. Imagine as we are travelling in the space ship called Earth, The Earth revolves around the Sun at a velocity of about 29800m/s and Earth rotates on its own axis with velocity of 464.58m/s. Take a point on the circumference of Earth, as it completes one rotation along with its revolution motion. It traces a cycloid curve and it travels $(8r/2\pi r)=1.27$ times more than the length of the circumference of a corresponding circle, here 8r is the length of the one arch curve of a cycloid and $2\pi r$ is the length of the circumference of a corresponding circle.

Secondly, translational velocity of rotating Earth is less than its translational velocity of its revolution. Any point on the Earth reaches same distance and in same the time by its both rotation and revolution motion and traces a cycloid curve, will be in acceleration. This acceleration we observe as acceleration due to Gravity. If planets stops its motions then there is no acceleration induced, everything would become weightless contrary to the belief, which says it will become more due to Gravity. Suppose imagine that a body floats in the space without any gravitational attraction force, if in its way a planet comes, surely it will carry away the floating body along its way i.e., floating body falls on the Planet. If the rate of falling of a body to the planet is different from the rate of falling of a body due to the Gravitational force, then there is chance of believing the existence of attractive Force of Gravity. But, it is not so. Another important one is escape velocity of Earth, it is the least velocity required to throw a body away from the surface of the Earth so that it may not fall back to earth.

## III. Existing Method to Calculate Escape Velocity

Work done to take a body away from Earth = GMm/R
Where G is Universal Gravitational constant and M and m are mass of Earth and mass of a body on Earth and R radius of Earth.
Kinetic energy to overcome the above work is given by
$E = 1/2mv_e^2$
Therefore, Equating above two equations
$1/2mv_e^2 = GMm/R$
$v_e^2 = 2GM/R=2gR^2/R = 2gR$
$v_e = \sqrt{2gR}$
$v_e$ is the Escape Velocity and substituting values we get 11200m/s.

But, Earth's velocity around the sun . i.e., in the forward direction is 29800m/s.
How it is possible to escape from Earth. If a body travel at velocity of 11200m/s. away from Earth and Earth is following behind at 29800m/s, which is greater than escape velocity, the body will not be able to escape from Earth. In other words, Escape velocity of any planet would be always greater than

**Manuscript received July 10, 2014.**

**C. Prabhakar,** Helped in Design calculations in my Project work in Engineering Degree. Out standing performer for the Fourth Consecutive year in GIS function in Bharti Airtel Services and also in Alcatel-Lucent network management services Limited

the forward direction velocity. The above argument is supporting evidence that current Gravity theory has some inherent flaw in its concept, which needs to be relooked. All the planets are revolving and rotating around the Sun may not be due to the attractive Gravitational force balanced by centrifugal force.But,due to the initial momentum which it might have got, when it thrown away from the huge rotating mass giving elliptical shape to its orbital path. Thus I like to conclude that Gravity may not be attractive force of the masses. But,Only due to the different or same rates of revolution and rotation of planetary motions. Till now no one could able to find the cause of Gravity or presence of its waves mainly because it does not exist. In nature only electric and nuclear forces exist.

## IV. Proposed Method to Calculate the Escape Velocity

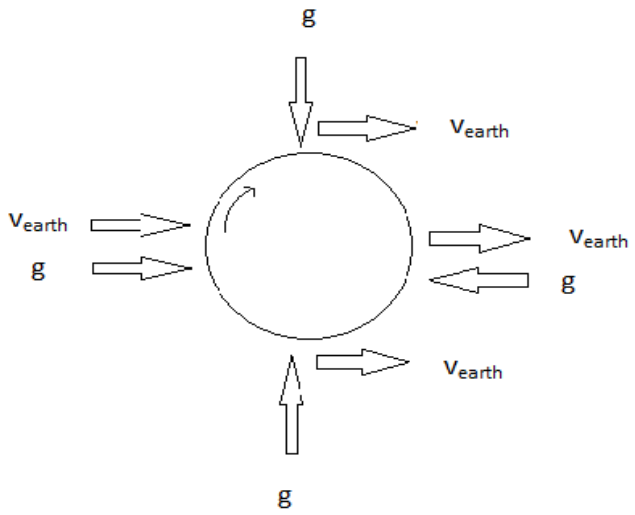


Figure 1 shows directions of Acceleration due to gravity and velocity of Earth acting at four different places.

Work done to take a body away from Earth = mgx
Where m= mass of the body
g=acceleration due to gravity
x= distance to which mass has to be moved
Kinetic energy to overcome the above work is given by
$E = 1/2mv_e^2$
Therefore, Equating above two equations
$1/2mv_e^2 = mgx$
$v_e = \sqrt{2gx}$
$v_e$ is the Escape Velocity
Also, for Planet Earth
$x=vt+1/2\ g\ t^2$
Here, $v_{earth}$ =initial velocity of Earth=29800m/s, t=time=1sec and g=acceleration due to gravity of Earth =9.22m/sec$^2$
Substituting values we get
x=29804.61mts
Escape Velocity = $v_e = \sqrt{2gx}$
$v_e$ is the Escape Velocity of Earth
Substituting values
$v_e = \sqrt{2}(9.22)(29804.61)=741.34$ m/s.
There are four options as shown in figure 1, where the direction of acceleration due to gravity and velocity of Earth acting. Maximum values should be chosen to decide the Escape velocity to be valid at all the points on the Earth.
Then, in that case the velocity of Earth should be added to the above velocity to get final Escape velocity.
$v_{e\ final}$ =29800+741.34=30541.34m/s.
The final Escape velocity of Earth = 30541.4m/s.

## V. Existing Method to Calculate the Acceleration due to Gravity

According to Newton's Law of Gravitation the force of attraction between Earth and the body of mass m placed on the surface of Earth is known as Gravity F is
given by $F=G\ Mm/R^2$ where G is called as Universal gravitational Constant, M is mass of Earth and R is Radius of Earth. When a body falls freely, it is attracted by the Earth with a force given by Newton's Law of Gravitation. This force is known as Gravity. The Effect of Force on the body is to produce acceleration in it. Thus, force of Gravity produces acceleration in a freely falling body. This acceleration is called as acceleration due to Gravity. This is denoted by 'g'.
According to Newton's second law
F=mg
Also, $F = G\ Mm/R^2$
Therefore, Equating the above two equations
We get, $g = GM/R^2$

## VI. Proposed Method to Calculate the Acceleration due to Gravity

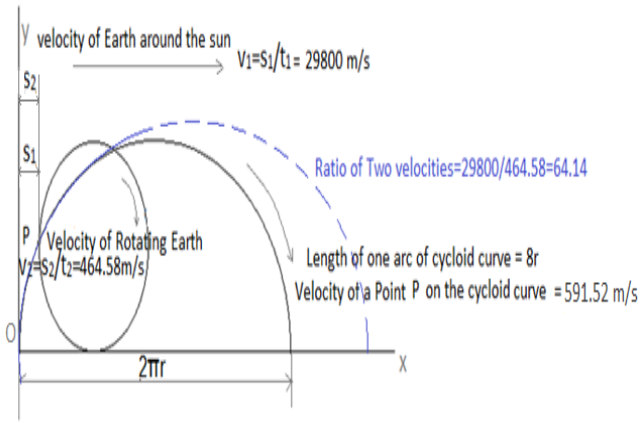


Figure 2. The Point P on the circle traces the Path of a cycloid curve as the circle rolls on the straight line for one complete rotation

Now, take a point P on the Earth and trace the equation for the movement of this point for one complete rotation and form the mathematical equation.
This results in the equation of a Cycloid. In other words, a cycloid is the curve traced by a point on the rim of a circular wheel as the wheel rolls along a straight line.
The length of one arch of cycloid curve is given by 8R where R is radius of circle
Here, Radius of Earth=6371000m
=8R=8*6371000=50968000 m
This is covered in 86164 seconds.
Therefore, Velocity of a point on the cycloid curve =50968000/86164=591.52 m/s.
The translational velocity of Earth around the sun=

$v_1$=29800m/s
The translational velocity of rotating Earth at the Equator = $v_2$ = (2* PI/86164)*6371000 =464.58 m/s
The ratio of two velocities =
$v_1/v_2=s_1/t_1/s_2/t_2$=29800/464.58=64.14
Where s= Distance, t=time and v=velocity
The point P considered on the cycloid curve covers the same distance then $s_1=s_2$ and then $t_2=t_1$*64.14
Take $t_1$=1 second
$t_2$=64.14 seconds
As the point P considered above covers the same distance even with two different velocities. Also, because it is a single point, it cannot have two different time Values , so the distance and time taken is same, only option left is to change the velocity(s/t), which results in acceleration(s/t/t).
Velocity of a point P on the curve of a cycloid traced by the Earth =v=591.52 m/s.
Time =t= 64.14 sec
Then, Acceleration = v/t= velocity/time=591.52/64.14= 9.22 m/sec$^2$.
It means how much a point P on the cycloid curve has been in acceleration, this is, we call as acceleration due to Gravity and is in the direction perpendicular to the circle, generating cycloid curve. That is perpendicular to the Earth. It may vary depending upon the variation in radius of Earth and Corresponding velocity taken for calculations. Similarly, we can calculate acceleration due to Gravity for any other Heavenly bodies.

## VII. CONCLUSION

If the above arguments are valid, then awaits many new explanation of existing known phenomena of the space science in a new light and only electro and nuclear forces are present in nature, not any Gravitational forces.

## REFERENCES

[1] Internet, IIT Physics Guide-Dr. S.L. Gupta and Dr. Sanjeev Gupta

## Authors Profile:

**PRABHAKAR C**

**PHONE(M):**9900190645,9482658680

**CAREER OBJECTIVE**:
To work in a position where I can apply my knowledge and skills for the growth of the organization.

**ACTIVITIES AND ACHEIVEMENTS**
Helped in Design calculations in my Project work in Engineering Degree.

Out standing performer for the Fourth Consecutive year in GIS function in Bharti Airtel Services and also in Alcatel-Lucent network management services Limited.

**Applied for Patent** for the design of a **New kind of Flying object (Ucraft)** , unlike conventional Flying objects like Aeroplane and Helicopter, it uses different method to fly.

**PERSONAL INFORMATION**

| | |
|---|---|
| Date of Birth | :04.06.1971 |
| Gender | :Male |
| Nationality | :Indian |
| Marital Status | :Married |
| Present Address | :Old No14/1,New 6 4$^{TH}$ Cross Jai Bharath Nagar Bangalore-5600033 |

**ACADAMIC INTERESTS:** Design, Cad, Quality Control, Energy conversion,Thermodynamics, Fluid dynamics, Strength of Material, Measurement and Instrumentation , Automobiles, Electronics, Electrical and also Manufacturing Engineering.
.
**INTERSTED ACTIVITIES:** To Bring innovative and creative Ideas in All the Branches of Science and Technology.

**LANGUAGES KNOWN** : English, Kannada, Hindi, Tamil

**WORK EXPERIENCE :** I Have Hands On Experience of Nearly 14 Years in Diverse Fields Like CAD, Telecommunication, Fabrication, Assembly, Stores and in Teaching faculty.

**EDUCATIONAL QUALIFICATION**

| Qualification | Institution | Year Of Passing | % Of Marks | Grade |
|---|---|---|---|---|
| **S.S.L.C** | St.Anthony's School Bangalore | 1987 | 70.33 | First |
| **P.U.C** | St.Joseph's College Bangalore | 1989 | 73.66 | First |
| **B.E.,(Mech)** | P.E.S.College Of Engg Mandya Mysore University | 1994 | VIII SEM 68.33<br>VII SEM 68.86<br>VI SEM 61.00<br>V SEM 60.00<br>IV SEM 57.20<br>III SEM 56.90<br>II SEM 64.30<br>I SEM 61.82<br>AGGREGATE62.30 | First |
| **Diploma in Computer Application** | N.C.C.T Bangalore | 1995 | 82.00 | First |
| **A Course in Oracle** | TATA UNISYS LTD Bangalore | 1996 | | |
| **Diploma in Computer Hardware** | N.A.I.I.T Bangalore | 2004 | 62.00 | First |

KNOWLEDGE OF COMPUTERS:

Operating Systems : Dos, Windows, Unix
Programming Languages : C,C++
Packages : Autocad R14,Cable Cad, Oracle, MS Excel, MS Word, Small World, Lotus
Elective in B.E : CAD/CAM, Work study