# A Calculus of Half Time

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**ABSTRACT**

This is for who is lover of science. We know we are living on this earth which revolves around sun and rotates itself; we generally do travelling from one place of earth to other and for this purpose we usually use vehicles, Trains, Aeroplanes so and so.

But if we use anything from these current option for travelling it takes time suppose if we take example of aeroplane travelling it takes some time to cover that specific distance. By history we human being developed many vehicles which are runs on very high speed day by day to travel from one place to another. We were used cycle then bicycle, car, trains, helicopter, and then aeroplanes to reduce the travelling time. Even though these vehicle are high speedy; we have some limitation to manufacture the vehicle which will run so very high speed. So the question is really is it possible can we reduced our travel time at ultimate extent?

Yes we can. But how?

It is total calculus of rotation of earth and sun concern with the travelling speed. We can travel with the speed of rotation of earth itself by the aid of Advance Technology Vehicle for lift and land purpose. This is actually great invention spark of 22nd centuries for further modification.

## INTRODUCTION

This research is a calculus for how we can reduce of travelling time. In this calculations I have calculated the earth rotation speed and travelling time relation, earth revolution speed with respect to sun and time relation.

For reducing the travel time I have assumed like the traveler need to goes up perpendicular by using any advance developed vehicle and comes down when the desired location come by the help of earth revolution itself.

And again this is possible only the direction at which earth revolves.



**Fig 1. Shape of earth "Oblet Spheroid"**



**Fig 2.Traveler goes up in space**

If a person is standing at 15 degree east latitude & 10 degree longitude i.e. in Nigeria in Africa and he want to go at 60 degree west latitude and 10 degree north longitude i.e. Guyana in South America. Then how can he go with minimum time? Or in other words,

1. How much time he will take to travel that distance by using highest speed of vehicle on the earth?
2. How much time he will take if he uses speed of rotation of the earth itself by coming out of earth atmosphere i.e. in space?
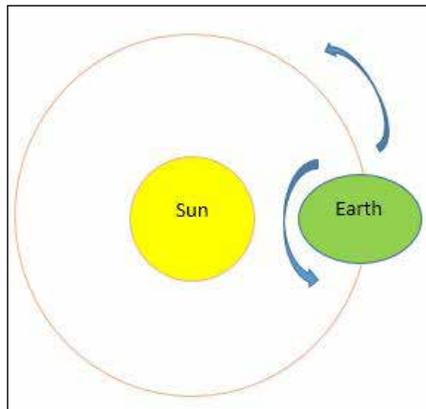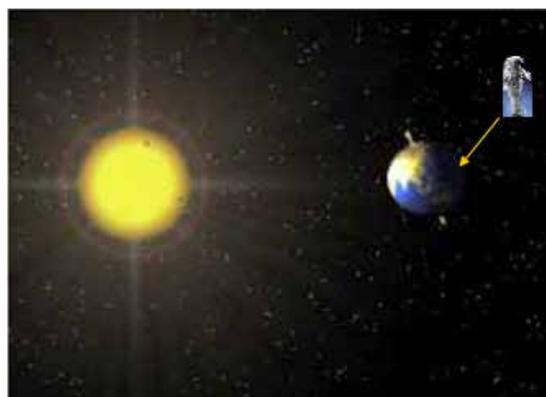


**Fig 3.Traveler come back on the desired location on the earth**

**Note**: In this journal are some calculations in which I have mentioned power, ex. 2451827[13]546 it means the digit 7 is 13 times so it becomes 2451827777777777777546 likewise.

**Proposal:**

Now,

One complete rotation of earth around itself with respect to sun takes 24 hour.

1 Rev = 24 hour

360° = 24 hour

= 1440 min          (K1)

Longitudinal diameter of the earth i.e. North to South is 12714 KM

D     =     12714 KM



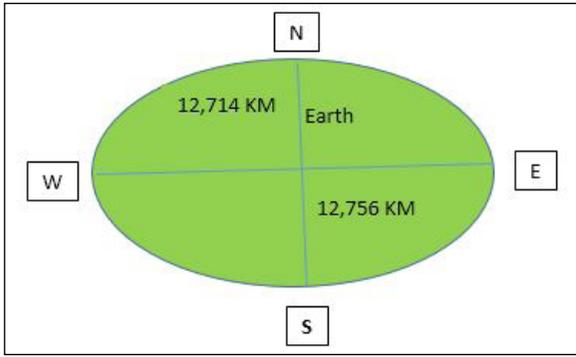**Fig 4. Oblet Spheroid Earth**

Hence, longitudinal circumference of the earth, (Cg)

Cg =     π D

    =     22/7*12714

    =     39958.28571428571 KM

Latitudinal diameter of earth i.e. East to West is 12756 KM

    D     =     12756 KM

Hence, latitudinal circumference of the earth, (Ct)

Ct =     π D

    =     22/7*12756

    = 40090.28571428571 KM

Ct in degree = 40090.28571428571/360°

Hence

1° = 111.3619047619048 KM          (1)

According to Norwood, 1° of the earth rotation     =     110.72 KM

Hence circumference

Ct = 110.72 * 360°

    = 39859.2 KM Latitudinal          (2)

But as per latest observation & calculation total latitudinal circumference considered ~ 40000 KM

Hence, Ct   = 40000 KM

Hence 1°   = 40000/360°

        = 111.1$^{13}$ KM          (3)

But again latest observation & calculation, latitudinal diameter considered 12756 KM, Then as per my calculation equation No. (1) is right & will considered for further all calculation

I.e. 1° = 111.3619047619048 KM of the earth.

Now,

What is relation between degree of rotation/revolution, time taken for rotation/revolution & total travel distance of the earth?

As we seen in equation number (K1)

1 rev     =     24 hour

360°     =     24 hour

    =     1440 min

Hence, distance, 1° = 111.3619047619048 from question (1)

Time, 1°   = 1440min / 360°

    = 4 min

    = 240 sec          (K2)

Hence, Speed of the earth of rotation per second in 1° around earth itself,

=   111.3619047619048 KM /240 sec

1° value from equation (1)

= 0.4640079365079367 KM/sec

**= 464.0079365079367 m/sec**

Now,

We know that Air distance from Nigeria to Guyana is

7476 KM =   4645 miles

If you travel with an airplane (which has average speed of 560 miles/hour) between Nigeria to Guyana, it takes ~ 8.3 hours to arrive.

i.e. = 4645 miles/ 560 hours

    = 8.294642857142857 hour

    = 497.6785714285714 min

Now, we know that 7476 KM distance is nothing but circumferential distance from Nigeria to Guyana.

Hence we need to know that, how much degree covered by this distance on the circumference of earth.

We know that 1° = 111.3619047619048 KM from equation (1)

Hence,

Degree covered by airplane,

= 7476 KM/ 111.3619047619048

= 67.1324724193962 °

Now,

The time taken to travel the same distance (7476 KM) by using the speed of rotation of the earth (e $_{time}$)

We know that

$1° =$  1440/360°

$1° = 4$ min

  = 240 sec from equation (K2)

Hence, $e_{time}$ = Degree covered by airplane * time taken by earth for rotation of 1 °

  = 67.1324724193962° * 4 min

  = 268.5298896775848 min

  = 4.47549816129308 hours

Hence,  We can say that by using calculations if we want to go from Nigeria to Guyana by using the speed of rotation of the earth only takes ~ 4.48 hours (i.e. Half Time) compare with the highest speed of the vehicle on the earth i.e. plane it takes ~ 8.3 hours.

Hence, we can conclude that if we go to travel with the speed of rotation of the earth then it takes less time. Time get reduced.

**About Sun,**
As we know earth revolves around the sun, so what will be the effect of the speed of the earth while revolving around the sun on the speed of the earth around itself?

Equatorial / Latitudinal diameter of the Sun

$D =$  1391400 KM

Hence, Equatorial circumference of the Sun
=  $\pi$ D

= 22/7*1391400 KM

= 4371212.01820 KM

But total equatorial circumference of the Sun is not the orbit of the earth revolution around sun.

Sun is away from earth 14.9597870691 crore KM.

Earth orbit is not the circular.

Calculated earth orbit path distance traveled by earth around sun

= 584 million miles

= 584000000 miles

= 939856896 KM (1 miles = 1.609344 KM)

Hence, 1° Circumference of the earth orbit

 =  939856896 KM/ 360°

$1° = 2610713.6$ KM                    (6)

Now, Total time taken by earth for completion of 1 revolution around Sun

= 365 Days, 6 Hours, 45 Min, 48 seconds
= 8766 Hours + 6 hours + 45min + 48sec

= 31560348 sec
= 526005.8 min                    (7)
= $8766.763^{10}$ hours
Now how much time taken by earth to revolve 1 ° around Sun?

We know,

360° Revolution of earth around sun  = 526005.8 min … from equation (7)

Hence, $1° =$  526005.8/360°

$1° = 1461.1272^{9}$ min                    (8)

  = $87667.63^{10}$ sec                    (9)

Now,

Speed of the earth of revolution around Sun?

We know that,

1° of the earth orbit around Sun,

$1° = 2610713.6$ KM  … From equation (6)

And total time taken to revolve 1 ° around the Sun

$1° = 1461.1272^{9}$ … From equation (8)

Hence, Speed of the earth of revolution in earth orbit around Sun in 1°

=  Total distance traveled by earth in orbit around Sun in 1 °/ Total time taken by earth to revolve 1° around Sun

=  $2610713.6$ KM/$1461.1272^{9}$ min
=  1786.780480367327 KM/min
=  $2610713.6$ KM/$87667.63^{10}$ sec     …From equation (9)
=  29.77967467278878 KM/sec
=  29779.67467278878 m/s
Hence, the speed of the earth of revolution in orbit around Sun is

**29.77967467278878 KM/sec or 29779.67467278878 m/s**.
                    (10)

**Hence, due to the very high speed of earth of revolution around sun, the lifted person will not able to come back on the earth at required place within expected calculated time.**
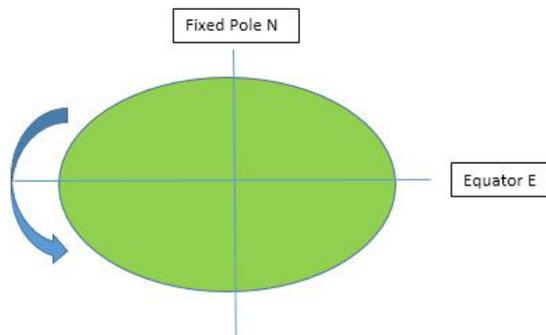


**Fig 4. Equator**

**CONCLUSION**
In this way we can reduced our half time of travelling with

respect to earth speed but not possible with respect to Sun, the speed of revolution of earth around the sun quite high.

**FUTURE SCOPE:**
Not Exactly know but will applicable in Aerospace, Astrophysics where very high speed is required.

**Assumptions:**
The time required for going a person in space we assumed like it is so fast i.e. 10 to 20 min.

For execution of this idea we considered like very high technology is available which will able to recognize the correct place on the earth from space so person can go in space and land at required place within calculated minutes.

We considered like for lift and land of person one advance technology vehicle is available which is very fast as per our calculated time. We assumed the vehicle is so advance which will prevent human from any environmental bad impact like Rain, Pressure, Velocity, Sunrays etc.

This idea is applicable only for direction of rotation of earth and places which are comes in the same earth rotational direction. Not Applicable in anti-direction.

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