

***Conceptual & Critical Analysis of Bill Stubb's Paper - An
Assessment of the Gravity Data during the March 9, 1997 Total
Solar Eclipse***

***By
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Abstract

This paper gives a theoretical and conceptual critical analysis of a paper published by William Stubbs (February 2013), An Assessment of the Gravity Data Collected at the Mohe Observation Center in China during the March 9, 1997 Total Solar Eclipse.

This paper is written to bring discussion, and a top level critical evaluation of Stubb's analysis and conclusion for the value of the "Speed of Gravity" based on his obtained experimental data of the gravitational interaction during a solar eclipse, as clearly described with graphs and tabular data, in his paper.

My analysis of Stubb's conclusions, places Newton and Einstein in a toe to toe stand off debate, over who has the more accurate description of the way that nature behaves. Newton makes the claims that there is an "Instantaneous Gravitational Interaction Speed" when there is the interaction between any two or more mass bodies. And Einstein makes the prediction that there is "Finite Speed of Light Gravitational Interaction" when there is the interaction between any two or more mass bodies. Stubbs concludes that Newton is correct! I maintain that Einstein is correct!

1. Introduction

Bill Stubbs, this is a very interesting paper. Likewise, I found your presentation on the Atomic Ordering of the Elements Using Nucleons model, that you presented via video presentation to the NPA, approximately a year and a half ago, very interesting also.

You follow rigorously the “Scientific Method” and I like that a lot!

Most dissidents don’t like to follow that method of science rigorously, because the “Scientific Method”, exposes their claims, and puts their head on the chopping block of public opinion and right criticisms.

What determines whether your head stays attached to your neck, or not, depends on the results of the “Theoretical and Experimental” claims of your work based on the Scientific Method.

I like this method of scientific investigation that Newton invented; it is great, because it separates the “physics wheat” from the “physics chaff”!

This work that you have published, has for me, raised a few question, and inquiries into your research.

I want to be “critical” and analytical of your work, not for the sake of being “critical”, but because you have raised a legitimate challenge to the physics community, using the “scientific method”; positing with challenging theory, with experimental data, and which is based on sound mathematics; if done correctly!

You are not trying to measure curvature around black holes this is pure “gravitational dynamics of eclipses.” These eclipses we see with regular occurrence.

Your work has presented an open challenge for the physics community; because we can repeat the experiment very easily, due to the cyclic nature of eclipses.

So if my arguments here throw your work under the bus, it is not to offend you, it is to seek the truth of nature; which is all that I am after!

The following is a set of statements and questions regarding the work;

**An Assessment of the Gravity Data Collected
at the Mohe Observation Center in China
during the March 9, 1997 Total Solar Eclipse**

by, William L. Stubbs

1.1. Critical Data Analysis

William Stubbs - page 3 - Section 3: Processing the Data

“As previously mentioned, an analysis of the measured data was done by subtracting the calculated theoretical gravity due to gravitational tides from the gravity values measured during the eclipse, attempting to isolate the effects of the eclipse.

It appears the thinking was that the GT calculation does not model the effects of the eclipse, just what would normally factor into the tidal gravity when no eclipse is occurring. However, reviewing the graph of the measured and theoretical gravities, it appears that assumption was incorrect.”

Robert Kemp

I like the method that you are employing here of “superimposing” two conditions of the same region of space of a “Tidal Gravity” model; one with “no eclipse” passing, and one with “an eclipse” passing.

“Tidal Gravity” models, are a bit tricky, you have to make sure that you are using the right model. Some physicists use a Newtonian, method of tidal gravity, because, Newton, did make mathematical calculation and predictions of the moons tidal effects on the earth.

More and more physicists are employing the mathematical techniques of General Relativity (GR) Theory, to model the effects of “Tidal Gravity”.

William Stubbs - page 3 - Section 3: Processing the Data

“The graph clearly shows that the gravitational tide model (GTM) was very successful at modeling the gravity caused by the eclipse. The calculation lies practically on top of the measured values during the eclipse. The only instances where the GTM appeared to have some difficulty were: transitioning from a no-eclipse configuration to an eclipse configuration; and from an eclipse mode back to a no-eclipse mode. In both cases it over predicted the strength of the gravity.”

Robert Kemp

I believe what you are saying here is, that their “Tidal Gravity” “GT” model and its theoretical predictions are correct; and it could be said that their “Tidal Gravity” model makes accurate predictions! Good! This is very important to the analysis.

If I were doing the analysis and using the scientific method, myself, I would also confirm this model by comparing it against other “Tidal Gravity” models which claim to make accurate predictions.

I once lead a team of engineers and gave them directions to build an orbital mechanical mathematical model, for placing satellites in orbit.

Once they completed the first model. I then made them design the same system using some other model. They hated me for that! Then when then completed that second model, I then made them design that same system using a different model still. They hated me even more!

When it was all done, we had three accurate models, each with their own strength and weakness, and predictive capability.

At the end of the project, the team and I, got good raises that year; and I was back in favor with my team!

William Stubbs - page 4 - Section 4: Data Analysis

“Prior to the start of the eclipse, the figure shows the MG deviation from the NGT flickering between $\pm 3 \times 10^{-8} \text{ m/s}^2$, within the precision of the gravimeter. Once the eclipse starts at around 8:00 AM, the gravity gradually rises to a peak of about $8 \times 10^{-8} \text{ m/s}^2$ around 9:00 AM, and then slowly declines until shortly after 10:00 AM, when it returns to its bouncing around between $\pm 3 \times 10^{-8} \text{ m/s}^2$.

There does not appear to be any anomalies.”

Robert Kemp

Here you are making the claims that the data shows a change in the “Gravitation Acceleration (g)”. Below is a quick summary of your statements above.

Contact Time	Gravitation Acceleration (g)	Analysis
8:00 AM	$\pm 3 \times 10^{-8} \text{ m/s}^2$	Average Flickering Normal
9:00 AM	$8 \times 10^{-8} \text{ m/s}^2$	Increase in Gravitational Acceleration
10:00 AM	$\pm 3 \times 10^{-8} \text{ m/s}^2$	Average Flickering Normal

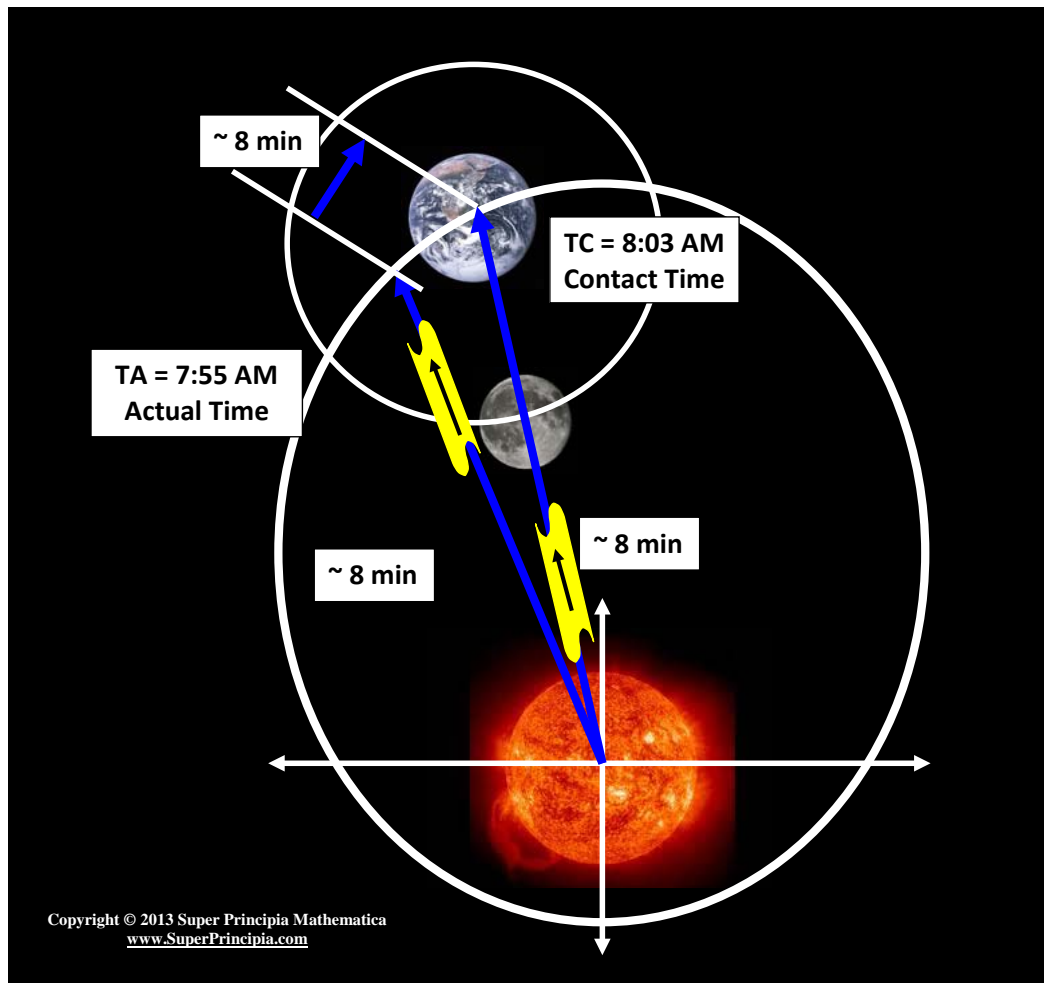
“According to reference 2, the first contact, the time that the Sun begins to move behind the Moon, occurs at 8:03 AM. This is the time that the gravity measured by the gravimeter should begin to increase. However, the graph shows that at point A, the gravity started rising, and did not fall back into the noise range ($\pm 3 \times 10^{-8} \text{ m/s}^2$) until the eclipse was over.

It appears that point A is actually when the eclipse began, at 7:55 AM, eight minutes before the eclipse visually appeared to begin.”

Robert Kemp

What is meant by “first contact” in regards to the term “visual” and measured by the gravimeter?

Below is an image that I created to describe visually what you are describing above. The image is an approximate conceptual visualization



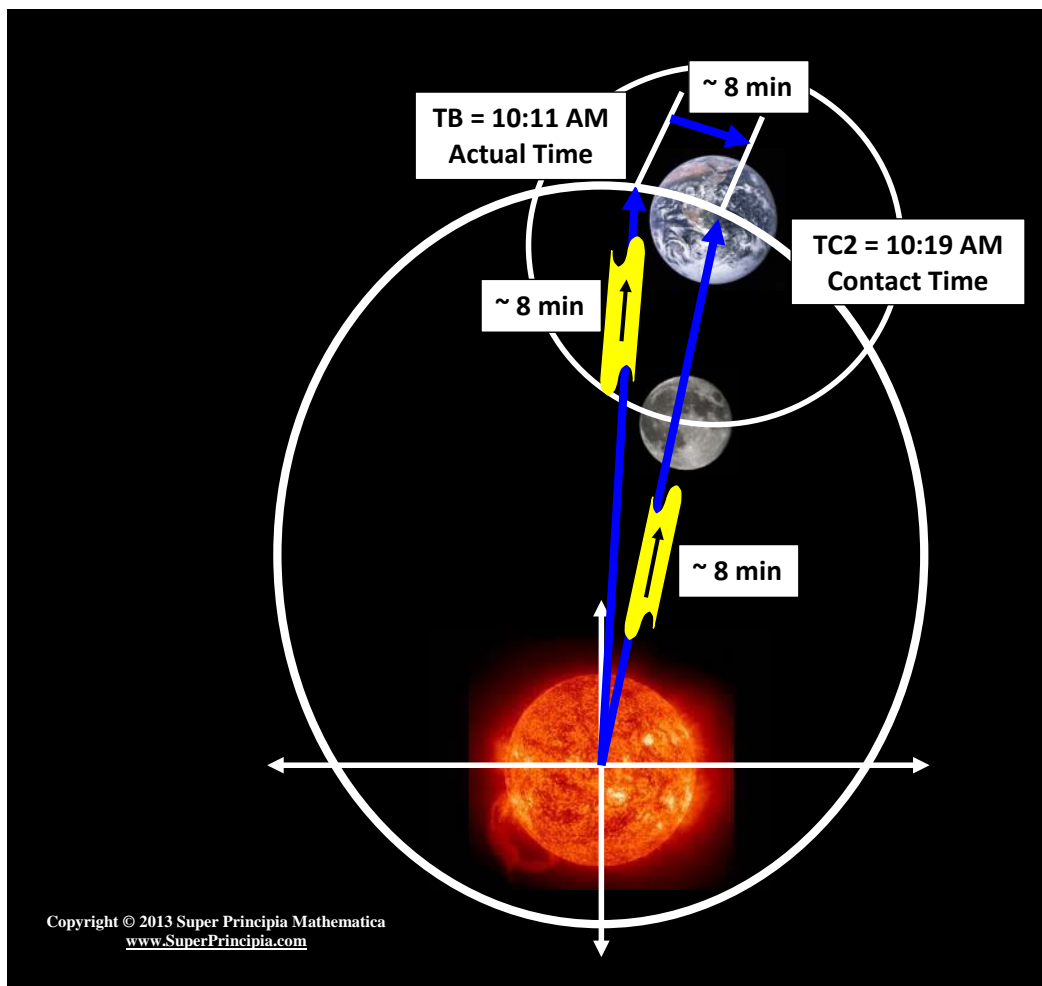
“Similarly, reference 2 indicates that the fourth contact of the eclipse, the time the Moon ceases to cover any of the Sun, was at 10:19 AM. At this point, the eclipse is over and the delta gravity readings should fall back to normal ($\pm 3 \times 10^{-8} \text{ m/s}^2$).

However, a dramatic drop in the gravity reading occurred at point B, which signals the end of the eclipse. Point B is at 10:11 AM, once again, eight minutes before the visual end of the eclipse.”

Robert Kemp

What is meant by “fourth contact” in regards to the term “visual” and measured by the gravimeter?

Below is an image that I created to describe visually what you are describing above. The image is an approximate conceptual visualization.



“These two observations seem to indicate that the gravimeter senses the eclipse eight minutes before it is actually seen. Since it takes light a little over eight minutes to travel from the Sun to Earth, what the Sun appears to be doing now really happened eight minutes earlier.

So, it looked like the first contact occurred at 8:03 AM, but it really happened at 7:55 AM, when the gravimeter detected it. It looked like the fourth contact was at 10:19 AM, but it actually occurred at 10:11AM, again, when the gravimeter sensed it.

Robert Kemp

You are making a claim here that there was a “measured” change in the “gravitational acceleration” that took place somehow before the eclipse was visually seen.

Contact Time	Actual Time	Gravitation Acceleration (g)	Analysis
8:03 AM	7:55 AM	$\pm 3 \times 10^{-8} \text{ m/s}^2$	Average Flickering Normal
9:00 AM – 10:00 AM	9:08 AM – 10:08 AM	$8 \times 10^{-8} \text{ m/s}^2$	Increase in Gravitational Acceleration
10:19 AM	10:11 AM	$\pm 3 \times 10^{-8} \text{ m/s}^2$	Average Flickering Normal

I will need a clear distinction here, between your two measuring devices that you are considering:

First, you are considering the measuring “sensor” of the “Gravimeter” which measures changes in the accelerations.

Second, in your argument you are considering some sort of “visualizing apparatus” as one of the parameters for your argument.

I get that your measuring apparatus is your “eyeball”, is that correct?

Making a clear distinction between these two measuring apparatus, are critical to your claims, and the conclusions of your analysis of the data, your idea, your theory, and interpretation of the experimentally measured results; as presented in your published paper.

My conclusion would be that the “Gravimeter” is the only true measuring apparatus that can be used in this scenario. I am not able give any more criticisms on this matter, until I get your response for the “visualizing apparatus”.

Or maybe you could just expound a little more on your concept of the “visualizing apparatus”?

William Stubbs - page 6 - Section 4: Data Analysis

This all suggests that gravity happens instantly (or nearly instantly) and is not bound to the speed of light. If this finding stands, it is significant.

There is a debate about the so-called “speed of gravity,” with essentially two camps: the “speed of light” camp and the “instantly” camp. This data appears to support the camp claiming effects of gravity are felt instantly.”

Robert Kemp

Bill, this would be a very significant finding, this is why, I am responding to you in this way, via a write-up instead of just an email. Also, I would like to start debate and hear what others think of your findings.

Here Newton and Einstein stand toe to toe in a face off debate, over who has the more accurate description of the way that nature behaves. Newton with his “Instantaneous Gravitational Interaction Speed” raised high! And Einstein with his “Finite Speed of Light Gravitational Interaction” raised high.

And now you Bill, are going to try and determine who is the winner of the fight, and has the more correct explanation of nature!

1.2. Critical & Conceptual Analysis

Now, here is where I get very critical of your work, with my refutation argument!

According to a “Unified Gravitational Vortex” theory that I have proposed in the work Super Principia Mathematica, I believe that surrounding every Inertial Mass or Matter (m_{Net}) object in the universe, (i.e. Suns, Planets, Moons, Atoms, Electrons, Protons, etc...), there is spherically symmetric symmetry, in the form of interacting “Electromagnetic Fields” and “Gravitational Fields”.

The “Electromagnetic Fields” origin is the “Gaseous Aether”, and “Gravitational fields” origin is the isolated and conserved Net Inertial Mass; working and interacting together they form a unified “Gravitational Vortex” system.

The “electromagnetic fields” are described by an “Aether Gas” that is a measure of the “Space-time” which is a continuum; and is isotropic, omni-directional, and homogeneous, where the constituents of the gas interact, and collide with an average speed, equal to the Speed of Light (c_{Light}).

This is a form of “Gravity” called “Aether Gravitation”, where “Aether” is attracted to “Mass” and the center of an isolated and conserved mass system.

The “gravitational fields” are described by a condensing of the “Aether Gas” that is a measure of the “Space-time” which is a continuum; that is inhomogeneous, where the “Mass or Matter” constituents interacts with the “Aether Gas”, and other “Mass or Matter” constituents colliding and orbiting with an average speed,

equal to the Tangential Orbiting Speed of Gravity ($v_{\text{Gravity}} = \sqrt{\frac{m_{\text{Net}} \cdot G}{r}}$).

This is a form of “Gravity” called “Inertial Mass Gravitation”, where “Mass” is attracted to “Mass” and the center of an isolated and conserved mass system.

So here we are in agreement here, that there are two different types of speeds and fields present in this model; there is the “Gravitational Field” and there is the “Electromagnetic Field” which I also call the “Isotropic Space-Time Aether”.

Now, in my model, which I have not spoken about, there is also a concept of “Vacuum Energy Velocity” (v_{Vacuum}); and I am afraid to admit, that it calculates values that are exceeding the speed of light; but is not infinite.

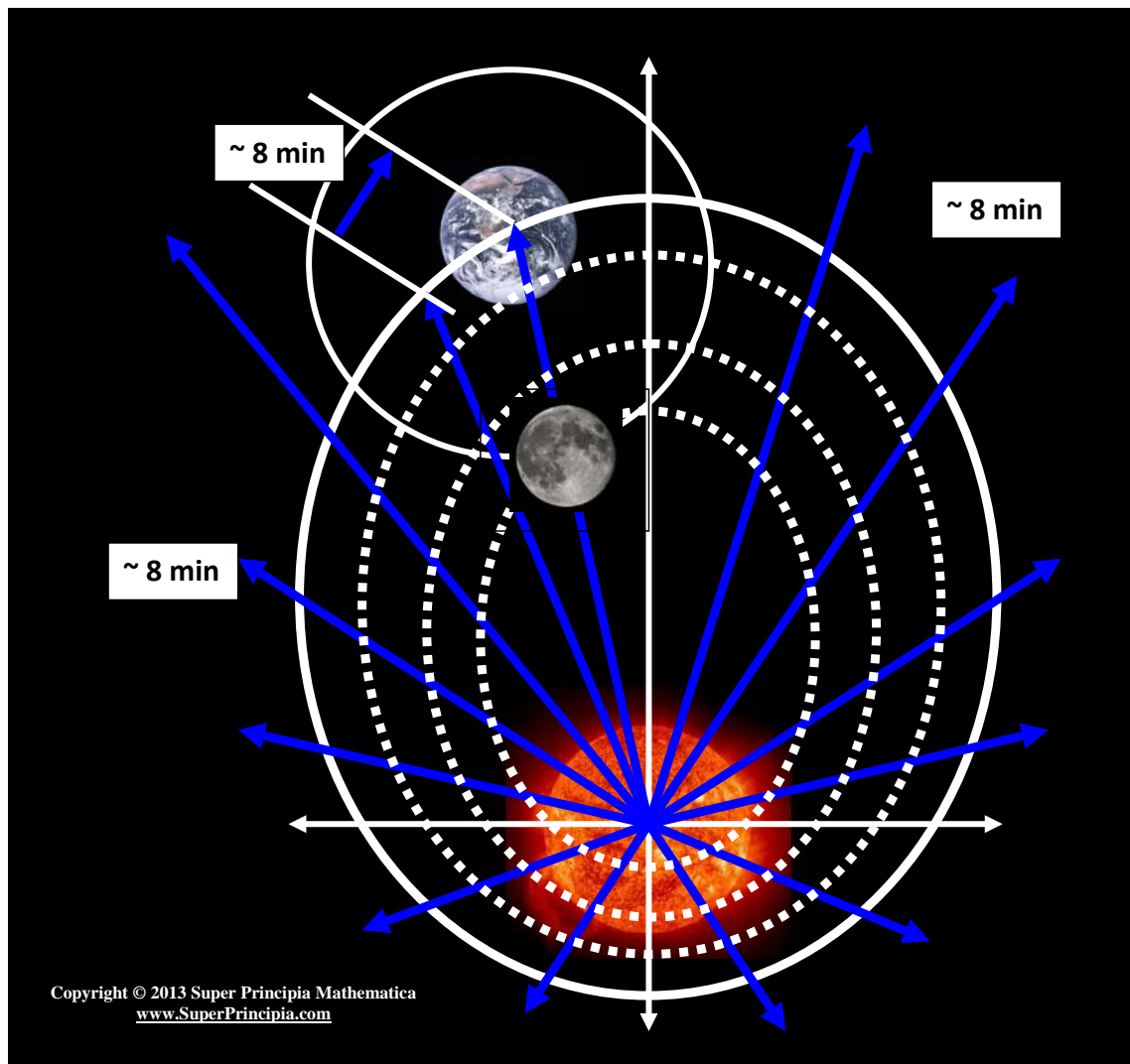
However, this is different from what you, are postulating. You are postulating the Newtonian Concept of Gravitation, which makes the claims the “Gravitational Interaction” between any two or more mass objects, takes place instantaneously.

This is in contrast, with what is generally accepted by the mainstream physics community, by consensus which accepts that General Relativity is correct, Einstein is right, and “Gravitational Interaction” between any two or more mass bodies takes place at the “Speed of Light”.

Now, in the “Unified Gravitational Vortex” model that I described for the “Isotropic Aether” the “electromagnetic fields” or “photons” propagate away from the sun, but not one by one in “Radiation Beams” or “Radiation Pulses”.

The electromagnetic radiation from the Sun is hitting the “Earth’s Orbit” in a spherically symmetric and isotropic way. Think of it more like a spherical pulse propagating outwards from the sun. This way of thinking of a spherical pulse is different than the thought process of one by one the sun is sending out these “Radiation Beams”.

In the drawing below, is a visualization of the concept that I am trying to convey.



In my opinion, you have a theory that is somewhat in line with a “Gravity Beams” model.

The problem with applying a “Gravity Beams” model is that most supports for this model, postulate that the “Gravity Beams” are not infinite speed, but are finite and propagate at the speed of light.

You are not arguing for “Finite Speed” “Gravitational Interaction”, you are arguing for “Infinite Speed” “Gravitational Interaction”.

Now, what if your “Gravitational Interaction Speed” is not “infinite”, but is still greater than the “speed of light”?

I would call this “Vacuum Energy Velocity”, however, how we would measure the speeds of this “Vacuum Energy” which exceed the speed of light, I would have no idea?

I think that we would only be able to see its effects on matter or the space that matter is traversing, and not measure its speed directly, like we do gravity or the speed of light; this is similar to what they claim as “Dark Matter”.

In summary to claim “Instantaneous Gravity Transmission” is a “bit of a stretch” in my book, your argument the “Gravity” travel faster than “Light” can be debated.

What is your explanation for why there is an increase in the “Gravitational Acceleration (g)” in the data during the eclipse?

The mainstream physics community would be much harder on you, concerning your interpretation of the data, than I have been in this response to your research.

I still feel that Einstein has provide the correct answer, and he predicts that the “Gravitational Interaction Speed” between any two or more mass bodies is the speed of light (c_{Light}).

I like this work, independent of the conclusions.

1.3. Conclusion

William Stubbs - page 7 - Section 5: Findings

There were five findings identified as a result of this assessment:

- 1. The actual measured gravity values are not easily accessible.*
- 2. The model used to produce the gravitational tide gravity values in the original analysis apparently also models the eclipse.*
- 3. When the data is properly processed, there does not appear to be any anomalies in it.*
- 4. The gravimeter registers the effects of the eclipse about eight minutes before they become visually apparent.*

Robert Kemp

1. I believe that this data is not easily accessible, because the owners of that data, know that people, will get their hands on their data, and draw all types of conclusions about their data, that they don't want in the court of public opinion.

If you debunked their data, before they made their own final analysis of the data, they might not get next year's funding.

Also, this is not a common experiment that is on the forefront of most physicist minds, so an experiment like this could get swept under the rug, basically because there is no "Hype" around the experiment.

I believe that this is an idea than can be marketed, as the true "Newton" vs. "Einstein" challenge!

2. We can use "ephemeris data" to predict solar and lunar eclipses with great accuracy into the future. Our calculations work so well that we can extrapolate, and determine what the night sky looked like when Jesus the Christ, the Savior of the world was born.

There are various "Tidal Gravitational Models" which are able to predict the tides caused by the gravitational interaction, between the moon and the earth. Most are Newtonian Models, and many General Relativity models are emerging to predict the tides gravitational interaction as well.

Tidal Gravitational Models measure accelerations and changes in accelerations during any two or more mass bodies are in gravitational interaction.

3. I believe when you use the words that there “are no anomalies” in the data, this means that the predicted “Mathematical Calculations” of the “Tidal Gravitational Model” matched experimental results very accurately.
4. I believe that your findings bear out what should be happening in nature.

I think that “Gravity” was sensed by the “Gravimeter” the whole time, then when the Eclipse of the Moon passes, the “Gravitational Interaction Distance” is decreased, and this causes there to be an increase in the “Gravitational Acceleration (g)”; only during the eclipse of the moon.

To me the results of this are more interesting to me, than whether the speed of gravity is instantaneous or not.

The fact that we can measure a gravitational acceleration increase during a solar eclipse is not something that I thought was measurable!

Thanks for presenting that data.

If I used your analysis fully, I could conclude that I should only be able to see any object on the earth, with a frame rate of every eight (~8 minutes).

This does not happen in nature.

Light is isotropic, omni-directional, and homogenous in a space-time or gravitational field, and should hit your eye from all directions, at different times.

Bill, this is great research. I like it a lot, independent of the conclusions.

Keep up the good work.

Kind regards

Robert Louis Kemp

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