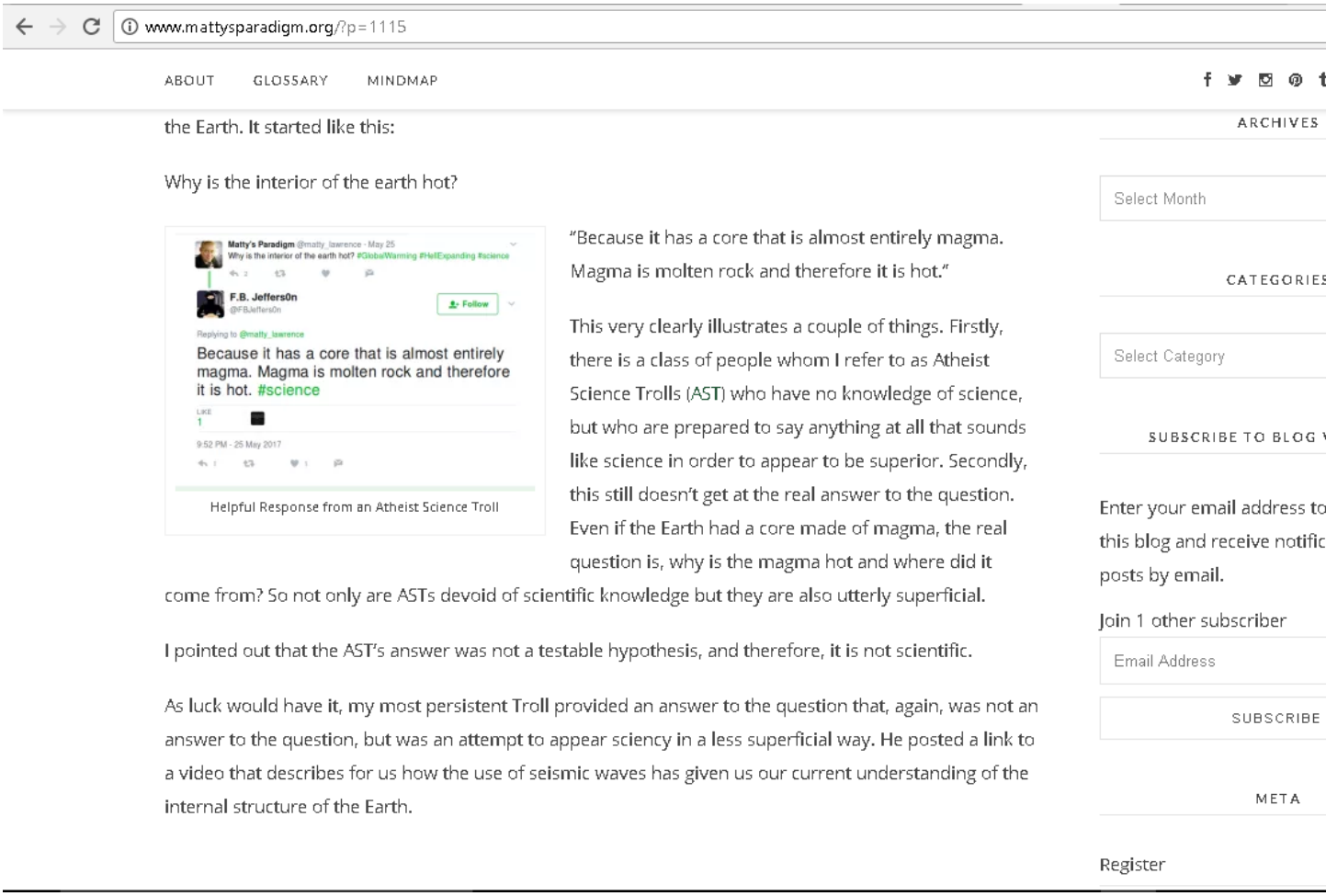
A Response to "The Pillars of the Earth and Radial Shrinkage"

Introduction: In the interest of good science, I always make sure to consider opposing arguments to my currently held viewpoints to the furthest extent. Recently, Matty's Paradigm has sent me a link to an article, written by himself, titled "The Pillars of the Earth and Radial Shrinkage". This article was in response to me stating that if radioactive decay rates were drastically increased, like he claims they are, then scientists would observe all kinds of other changes in chemical bonds and gravitational forces, as well as thermal output as a result of decay. Here I hope to explain in great detail just how fallacious his claims are, and how he makes assumptions about the accepted scientific position on the earth. At the same time I will refute any supposed assumptions he might accuse scientists of making. Now I am not qualified to speak on subjects such as these. I have no scientific degree, so I will be citing reliable sources for all of my claims. Matty has also accused me of taking scientific studies out of context so I will accompany all of my claims with screenshots from my sources, so the audience can judge for themselves. Without further ado, let's begin.

Assumptions: It's important to begin this by addressing assumptions. There is a stark difference between an inference and an assumption. An inference is a logical prediction made on the basis of pre-obtained observations. For example, suppose I drop a ball 100 times. Every time I let go of the ball it falls to the ground, clear evidence for gravity. I can infer that on the 101th time I drop the ball it will also fall to the ground and not do something strange, like float or go up. This is an inference made on the basis of evidence I've already gathered through observations. An assumption is a guess made on no foundation of evidence. Assumptions are often made in order to support a pre-existing bias, in spite of not having any evidence for the assumption. Every time Matty has ever accused me or another "atheist science troll", as he likes to call us, of using assumptions, it tends to turn out that it's an inference rather than an assumption we use. Like the ball analogy, various areas of science use observable evidence to make predictions. Here's another example: Evolution is a lot like forensics. Let's say that investigators arrive at the scene of a crime and see a dead body with a bullet hole wound in the head and a bullet casing lying nearby. Investigators don't need to have actually seen the person get shot to know that they were shot in the head. The evidence left behind by the event of the person getting shot is used to piece the event back together. Evolution follows the same mechanism. Scientists use observable evidence like comparative DNA, biogeography, paleontology, comparative anatomy, comparative embryology, and the fossil record to piece together the events of the past. There are no assumptions being made. It's called drawing the most rational conclusion based on evidence. I'd just like to point this out before we get too far into this because chances are matty is just going to dismiss this response as one big assumption, which is grossly inaccurate.

Questions Answered: Matty begins his article by presenting a case in which he asked the question, openly on twitter, "Why is the interior of earth hot?" I will get to the answer for that a bit later, but first I want to address the atheist that responded to his question on twitter. He claimed that the core is molten rock, magma. This is incorrect. The core of earth is made of predominately of iron (there's also some nickel in it and some studies indicate that there are most likely other lighter elements also present, but it is known that iron makes up the bulk of it). How do we know this? Seismic waves, caused

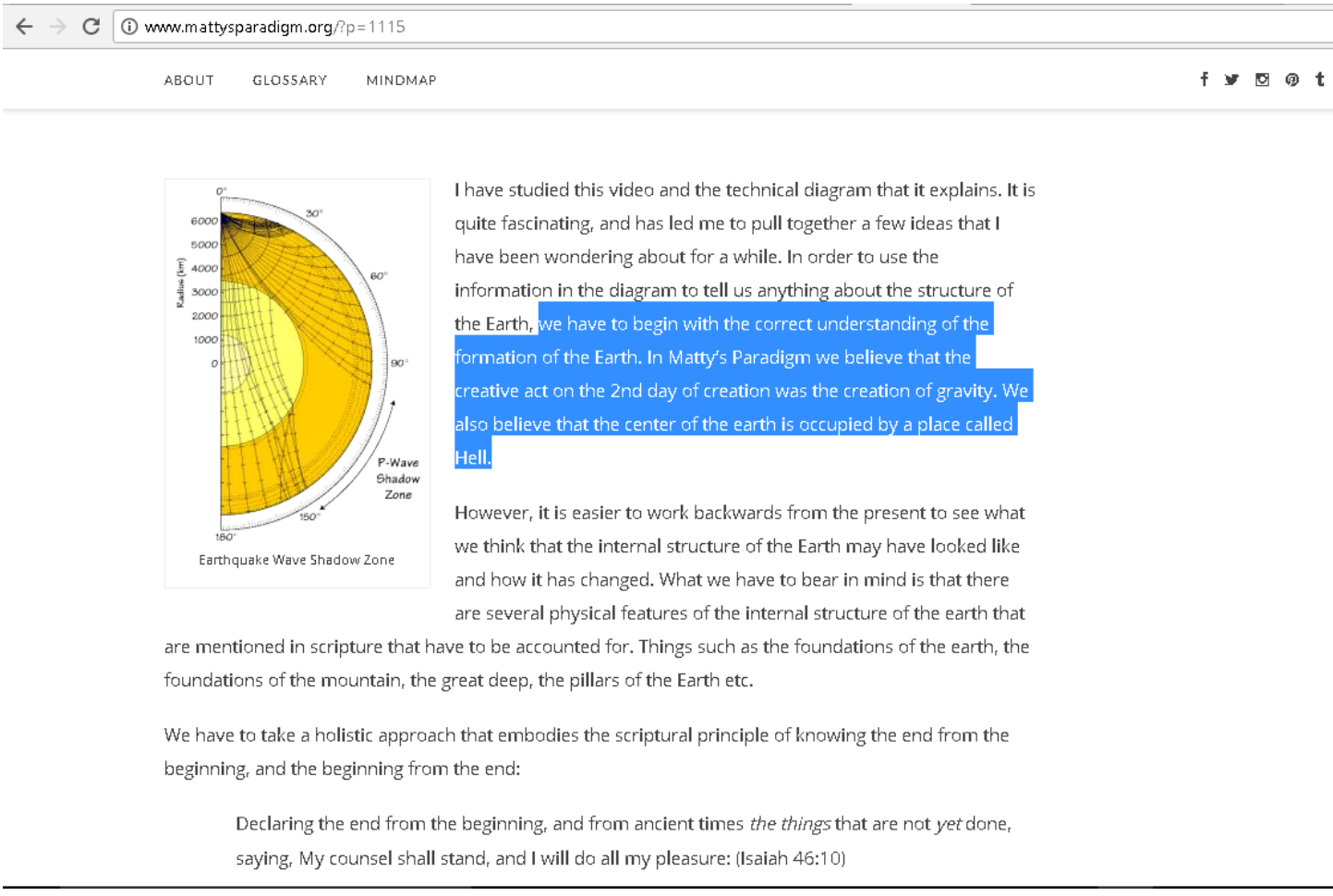
by earthquakes, travel through the earth and are measured by seismometers. The type of material the waves are traveling through determines exactly their velocity. The best fit for the velocity measured by seismometers is elemental iron (Fe).[1] If I recall correctly, a while back in my debate with Matty he accepted the fact that the earth's core is made of molten iron (the interior part that is). So this part shouldn't be up for debate, at least I don't think. (**Referencing below image**)



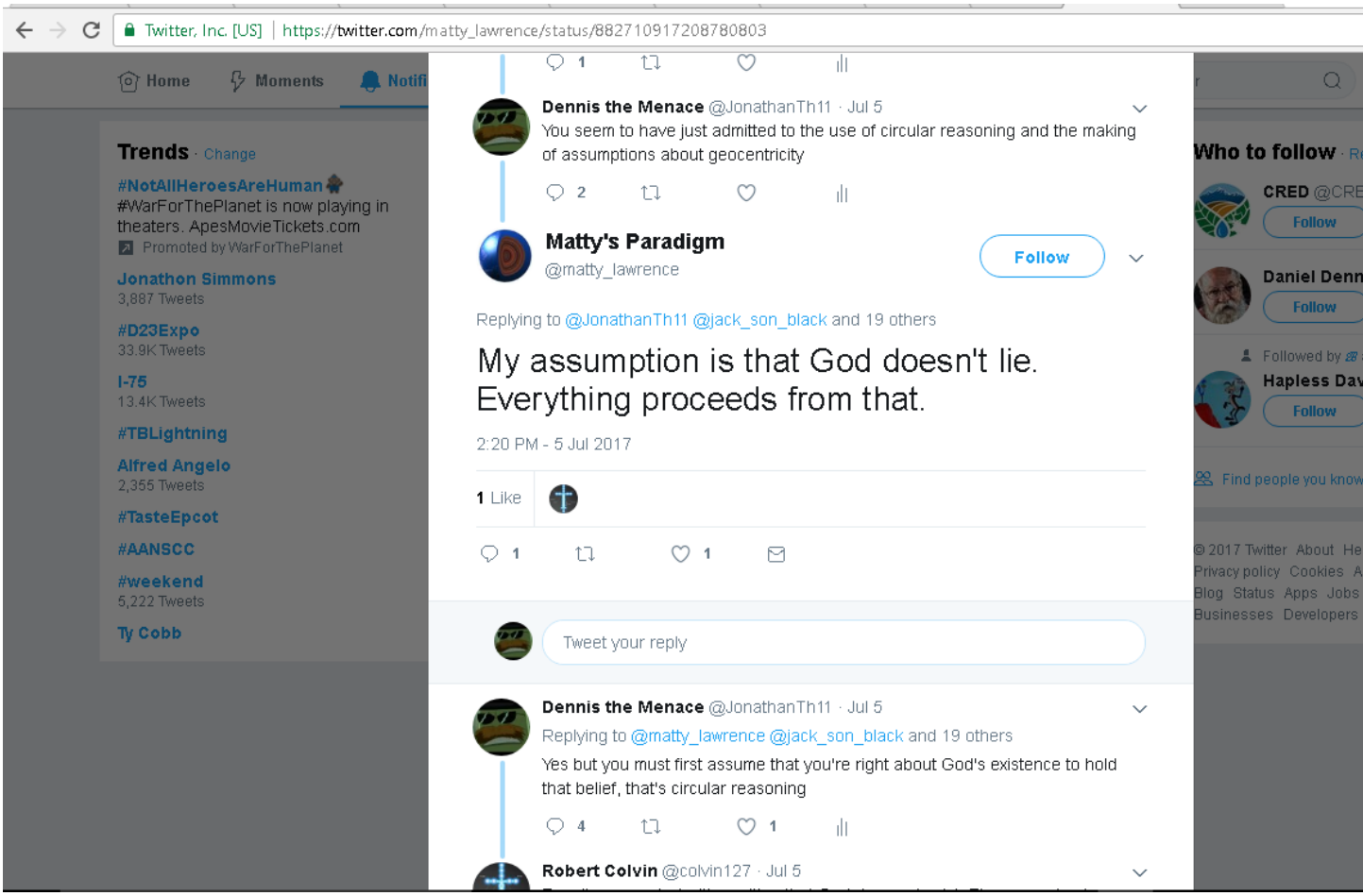
Now we move on to his first question. He asks "why is the magma hot and where did it come from?" Well as I've already established the earth's core is made of iron, not magma. It came from the formation of earth as denser elements gravitated towards the center to form an iron rich core. This is a very easy concept to understand. Heavier atomic elements sink. The elements that comprise the mantle and crust are not as heavy as iron and nickel. But that poses another question. By that same logic we should see heavy atomic elements like uranium in the core as well. At this point we have to also take into account the abundance of the materials. Iron is much more abundant in the universe than uranium; so uranium might only have small traces in earth's core while the rest is dispersed throughout the mantle. This is speculative to some degree but seismological data has never given any indications that the earth's inner core is comprised of any significant amount of uranium or other heavy metals, other than iron. This actually poses another problem to matty's paradigm, though. Matty claims that most of the heavy

radioactive elements, like uranium, were concentrated in the earth's core and decayed at an exponential rate after the fall of man. Well, this is impossible as we know that heavier atomic elements sink, but we find lots of uranium in the mantle. How would heavier atomic elements diffuse out of the core and into the mantle? It's simply a physical impossibility that defies gravity. As for why it's hot, now this IS speculation. We know for sure that radioactive decay is one factor in it. Other factors include frictional heat from the formation of the core and the initial stages of earth's formation in general.[2] I admit that this is speculation to some degree, but not everything matty's claims is speculation actually is as I will demonstrate throughout this response. (**Referencing above image**)

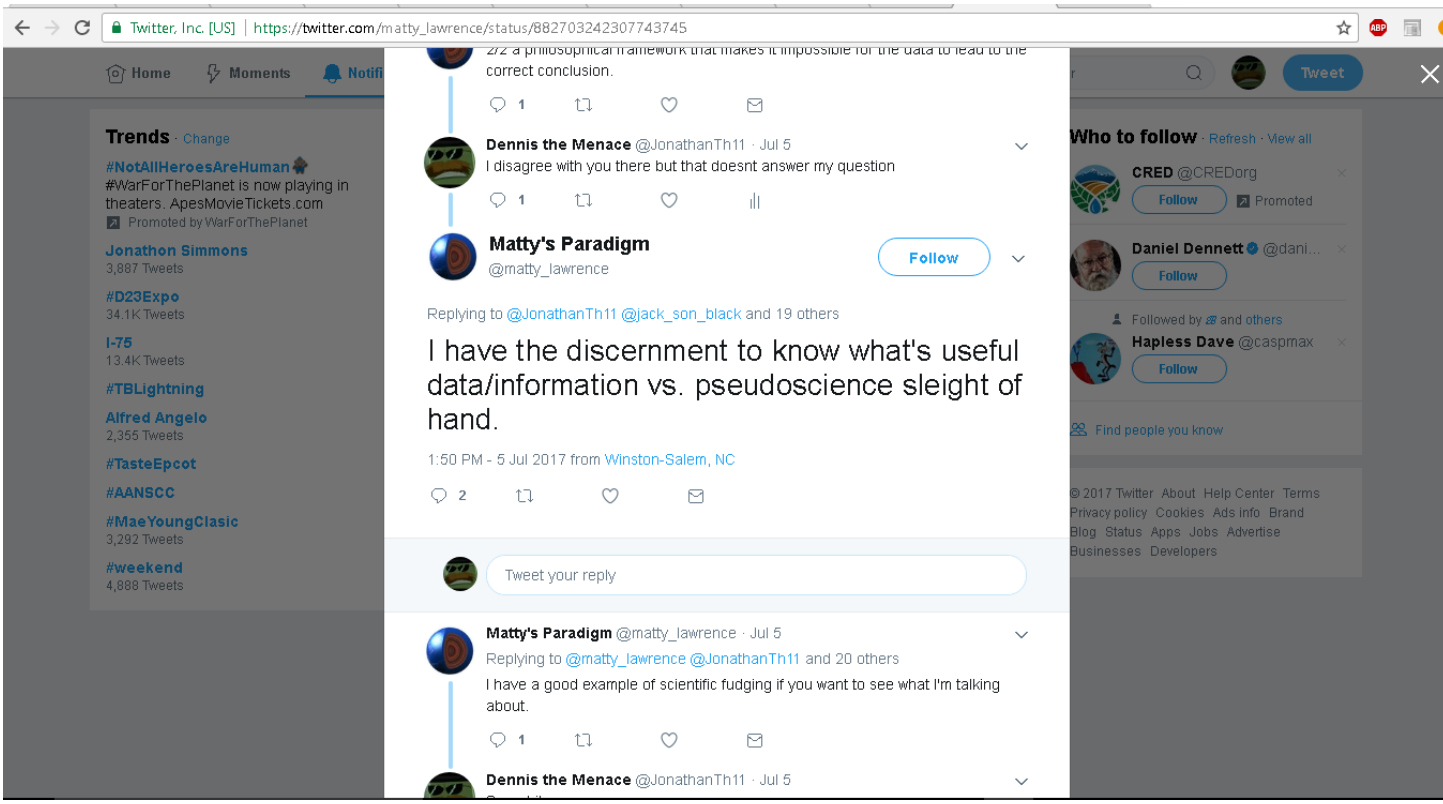
Circular Reasoning: Up to this point, I hadn't really had much of an issue with the things Matty had said in his article and the questions he asked. Now, however, I do. We move forward to where he begins to employ circular reasoning to support his argument. Here Matty claims that we have to begin with the "correct understanding of the formation of earth". He proceeds to cite biblical scripture as the foundation for the rest of the claims made in the argument. This is purely fallacious. I expect creationists to use real world observable evidence to prove the bible, not to use the bible to prove the bible. (**Referencing below image**)



Matty has in fact indicated that he uses circular reasoning in his arguments before on twitter.



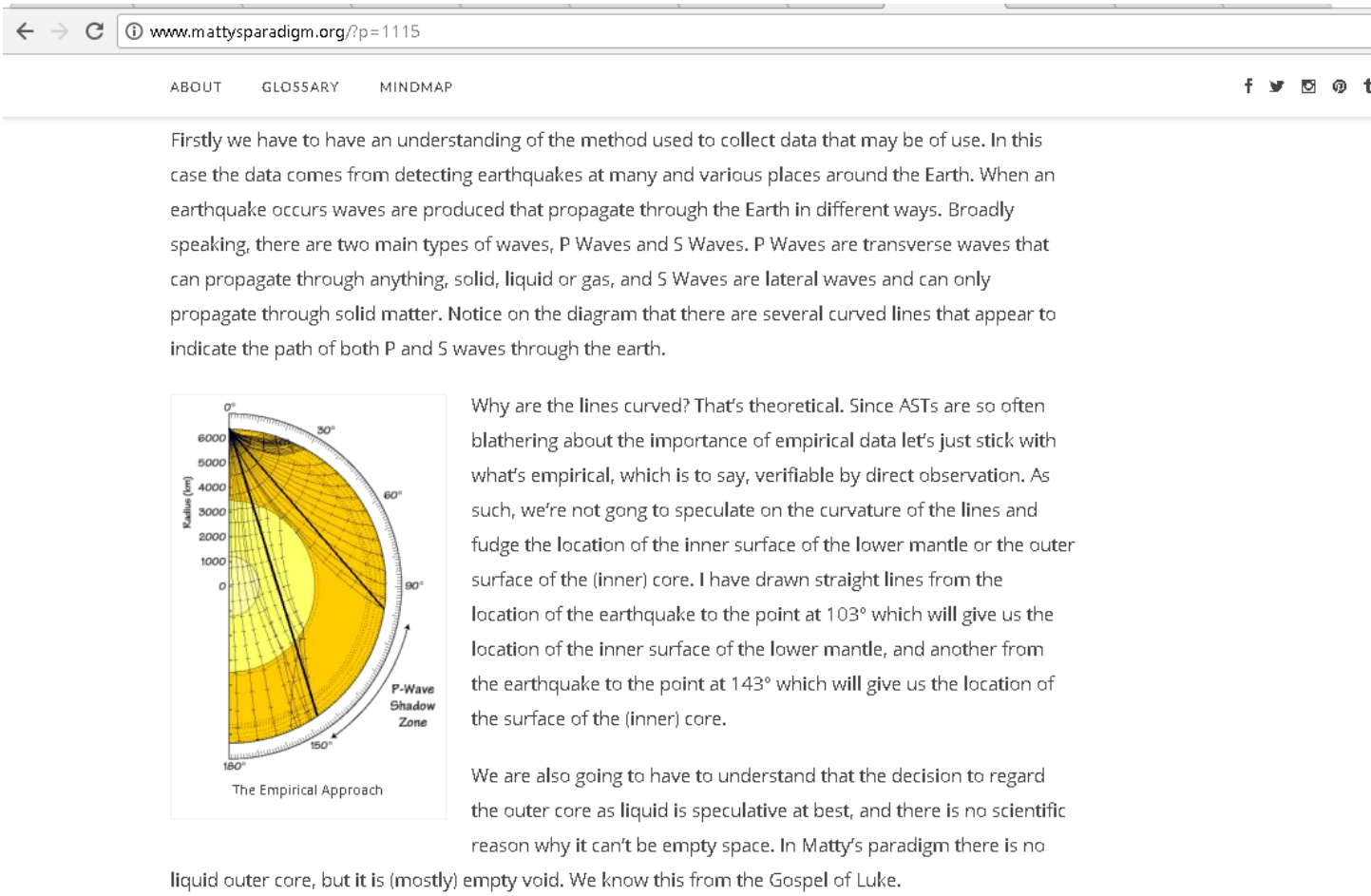
This is in regard to our debate on geocentricity. He states right here that his assumption is that god doesn't lie, and all his beliefs proceed from that. (**Referencing above image**)



This, however, is really the nail in the coffin for him. He claims in this tweet to have discernment. I've heard this claim from creationists before, that they have spiritual discernment granted by god which allows them to determine what is true and what is not. Matty claims to use this discernment in order to find out what evidence supports his beliefs and what evidence is false. The problem is that he has to assume his religion is correct to have that ability of discernment in the first place. The cycle works like this: Assume bible is true → gain discernment → use discernment to find evidence for the bible → back to the beginning. It is quite clear that Matty is employs circular reasoning to the fullest extent to justify his claims. He begins with the assumption that his religion is true in order to find evidence to prove his religion to be true. (**Referencing above image**)

I even accused Matty directly about his use of circular reasoning and he openly admitted to it here. There is no question about it; Matty uses circular reasoning. (**Referencing above image**)

The Facts: Moving forward, we come to the point where Matty discusses seismic waves and their usage (note: there is some content before this part, but I'm not going to respond to it since it's just Matty citing biblical scripture. Basically it's an extension of the circular reasoning that I've already covered). (**Referencing below image**)



Now to dive into some seismology. Surprisingly, everything Matty says in the first paragraph in this screenshot is correct. He is absolutely right about the way that P waves and S waves travel through matter. In the second sentence of the next paragraph, however, he makes a fallacious claim. He first asks why the lines are curved. Good question, Matty seems to believe that seismic waves travel perfectly straight paths, hence why he drew the straight lines on the image. (**Referencing above imag**e)

He is demonstrably wrong, however, because we know that the seismic waves do curve since distant seismic stations have detected waves in this mannerism. Scientists have performed artificial seismic wave tests to replicate the waves of that of an earthquake and then measure where the waves end up using geophones set in various locations.[3] (**Referencing below image**)

www.geophysical.biz/seisrf1.htm

INTRODUCTION

Seismic refraction is a geophysical method used for investigating subsurface ground conditions by utilising surface-sourced seismic waves. Data acquired on site is computer processed and interpreted to produce models of the seismic velocity and layer thickness of the subsurface ground structure. The method is commonly used for measuring the thickness of overburden in areas where bedrock is at depth, and assessing ripability parameters

OPERATION

Pulses of low frequency seismic energy are emitted by a seismic source such as a hammer-plate, weight drop or buffalo gun. The type of source is dependant on local ground conditions and required depth penetration. Explosives are best for deeper applications but are constrained by environmental regulations.

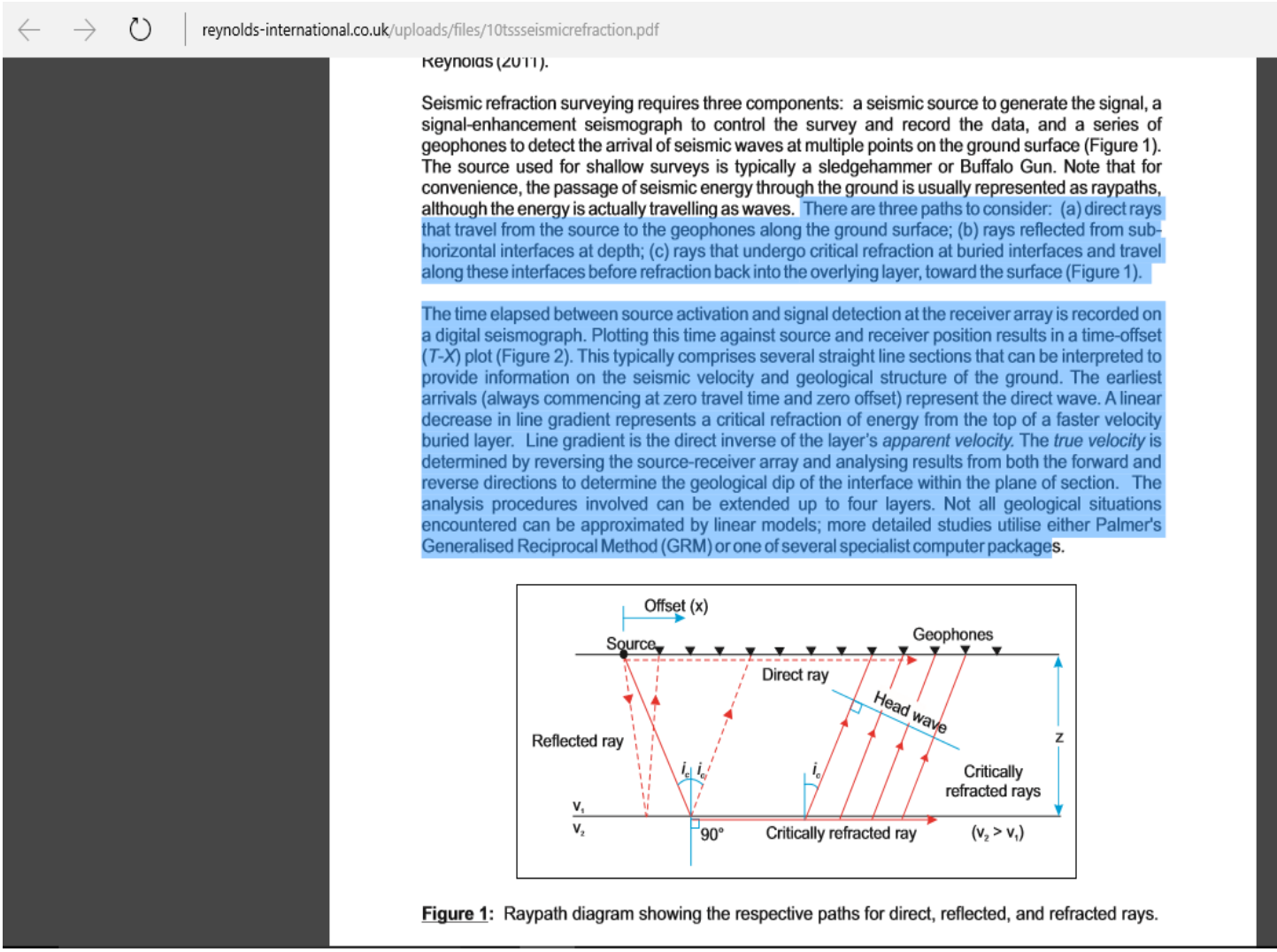
The seismic waves propagate downward through the ground until they are reflected or refracted off subsurface layers. Refracted waves are detected by arrays of 24 or 48 geophones spaced at regular intervals of 1 - 10 metres, depending on the desired depth penetration of the survey. Sources are positioned at each end of the geophone array to produce forward and reverse wave arrivals along the array. Additional sources may be used at intermediate or off-line positions for full coverage at all geophone positions.

DATA INTERPRETATION

Geophones output data as time traces which are compiled and processed by the seismograph. The basic components of a seismic trace are the direct
refracted wave. Wave refraction occurs at interfaces in the ground where the seismic velocity of the lower layer is greater than the velocity of the overlying
near surface site investigations where soil or fill overlies bedrock.

At geophone positions close to the seismic source, the first seismic wave arrivals are di
distance from the source, the first arrivals change to refracted waves due to the faster re

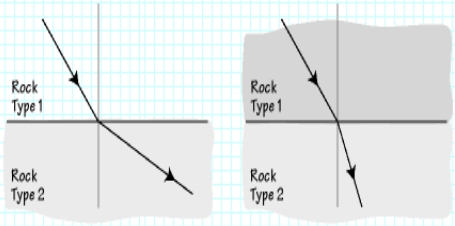
Now matty might say that straight seismic waves would hit the same locations that refracted/reflected seismic waves would. This isn't true. In seismic refraction tests, the seismic waves RETURN to the surface after a period of time due to refraction or reflection. Straight seismic waves would NEVER return to the surface. The only seismic wave that would hit the surface geophones would be the direct ray which travels horizontally along the surface and occurs at "zero travel time". After that the time-delayed refracted or reflected seismic waves return to the surface and hit the geophones.[4] The seismic wave refraction survey method is direct and definitive proof that seismic waves curve and do not follow perfectly straight paths like matty's diagram shows. (**Referencing below image**)



But why do seismic waves curve? It isn't theoretical at all. Seismic waves curve due to layers in the earth. Seismic waves follow the same laws of refraction and reflection as light waves do, according to Snell's law. The angle of refraction or reflection depends on the type of rock media the waves are encountering at different layers. [5] (**Referencing two below images**)

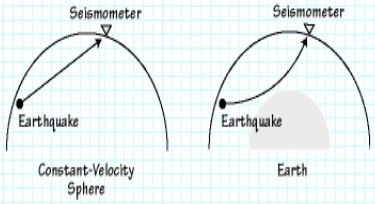
Refraction

As a wave travels through Earth, the path it takes depends on the velocity. Perhaps you recall from high school a principle called Snell's law, which is the mathematical expression that allows us to determine the path a wave takes as it is transmitted from one rock layer into another. The change in direction depends on the ratio of the wave velocities of the two different rocks.



When waves reach a boundary between different rock types, part of the energy is transmitted across the boundary. The transmitted wave travels in a different direction which depends on the ratio of velocities of the two rock types. Part of the energy is also reflected backwards into the region with Rock Type 1, but I haven't shown that on this diagram.

Refraction has an important affect on waves that travel through Earth. In general, the seismic velocity in Earth increases with depth (there are some important exceptions to this trend) and refraction of waves causes the path followed by body waves to curve upward.



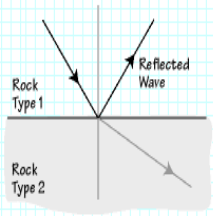
The overall increase in seismic wave speed with depth into Earth produces an upward curvature to rays that pass through the mantle. A notable exception is caused by the decrease in velocity from the mantle to the core. This speed decrease bends waves backwards and creates a "P-wave Shadow Zone" between about 100° and 140° distance

(1° = 111.19 km).

Reflection

The second wave interaction with variations in rock type is reflection. I am sure that you are familiar with reflected sound waves; we call them echoes. And your reflection in a mirror or pool of water is composed of reflected light waves. In seismology, reflections are used to prospect for petroleum and investigate Earth's internal structure. In some instances reflections from the boundary between the mantle and crust may induce strong shaking that causes damage about 100 km from an earthquake (we call that boundary the "Moho" in honor of Mohorovicic, the scientist who discovered it).

A seismic reflection occurs when a wave impinges on a change in rock type (which usually is accompanied by a change in seismic wave speed). Part of the energy carried by the incident wave is transmitted through the material (that's the refracted wave described above) and part is reflected back into the medium that contained the incident wave.



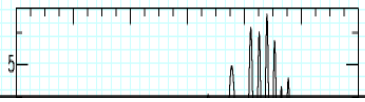
When a wave encounters a change in material properties (seismic velocities and or density) its energy is split into reflected and refracted waves.

The amplitude of the reflection depends strongly on the angle that the incidence wave makes with the boundary and the contrast in material properties across the boundary. For some angles all the energy can be returned into the medium containing the incident wave.

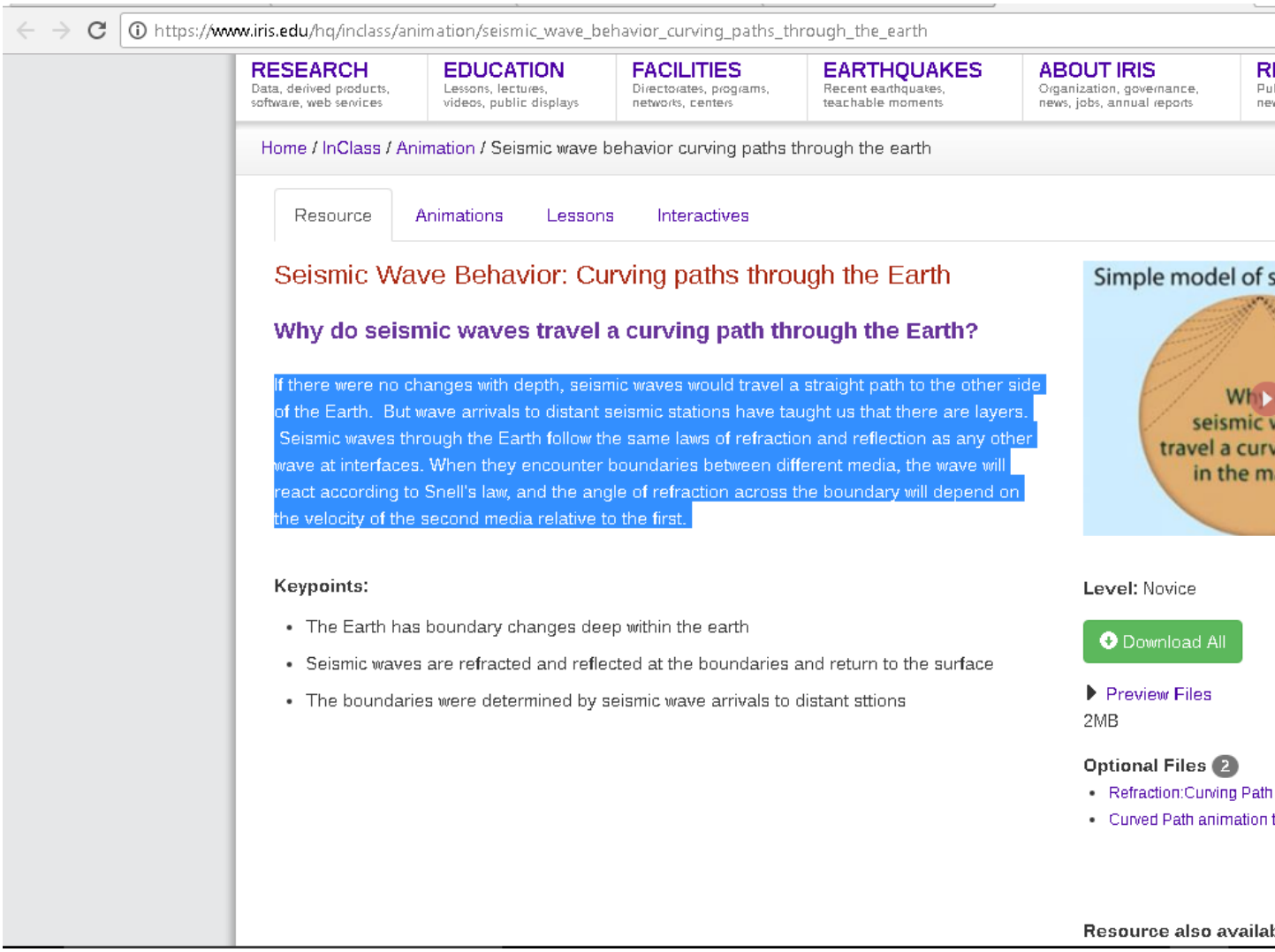
The actual interaction between a seismic wave and a contrast in rock properties is more complicated because an incident P wave generates transmitted and reflected P- *and* S-waves and so five waves are involved. Likewise, when an S-wave interacts with a boundary in rock properties, it too generates reflected and refracted P- and S-waves.

Dispersion

I mentioned above that surface waves are dispersive - which means that different periods travel at different velocities. The effects of dispersion become more noticeable with increasing distance because the longer travel distance spreads the energy out (it disperses the energy). Usually, the long periods arrive first since they are sensitive to the speeds deeper in Earth, and the deeper regions are generally faster.



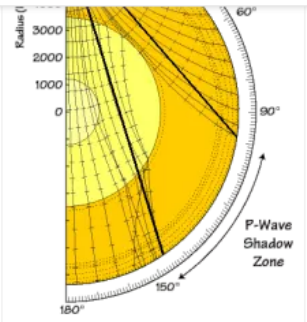
The angle at which the waves refract depends on the media between each boundary they encounter, relative to the previous media.[6] This pretty much topples everything else Matty says after that since he chooses to draw straight lines, to represent seismic waves, on the figure which isn't accurate and would not be possible with earth's varying types of media. (**Referencing below image**)



Earth's Outer Core:

www.mattysparadigm.org/?p=1115

ABOUT GLOSSARY MINDMAP



The Empirical Approach

such, we're not gong to speculate on the curvature of the lines and fudge the location of the inner surface of the lower mantle or the outer surface of the (inner) core. I have drawn straight lines from the location of the earthquake to the point at 103° which will give us the location of the inner surface of the lower mantle, and another from the earthquake to the point at 143° which will give us the location of the surface of the (inner) core.

We are also going to have to understand that the decision to regard the outer core as liquid is speculative at best, and there is no scientific reason why it can't be empty space. In Matty's paradigm there is no liquid outer core, but it is (mostly) empty void. We know this from the Gospel of Luke.

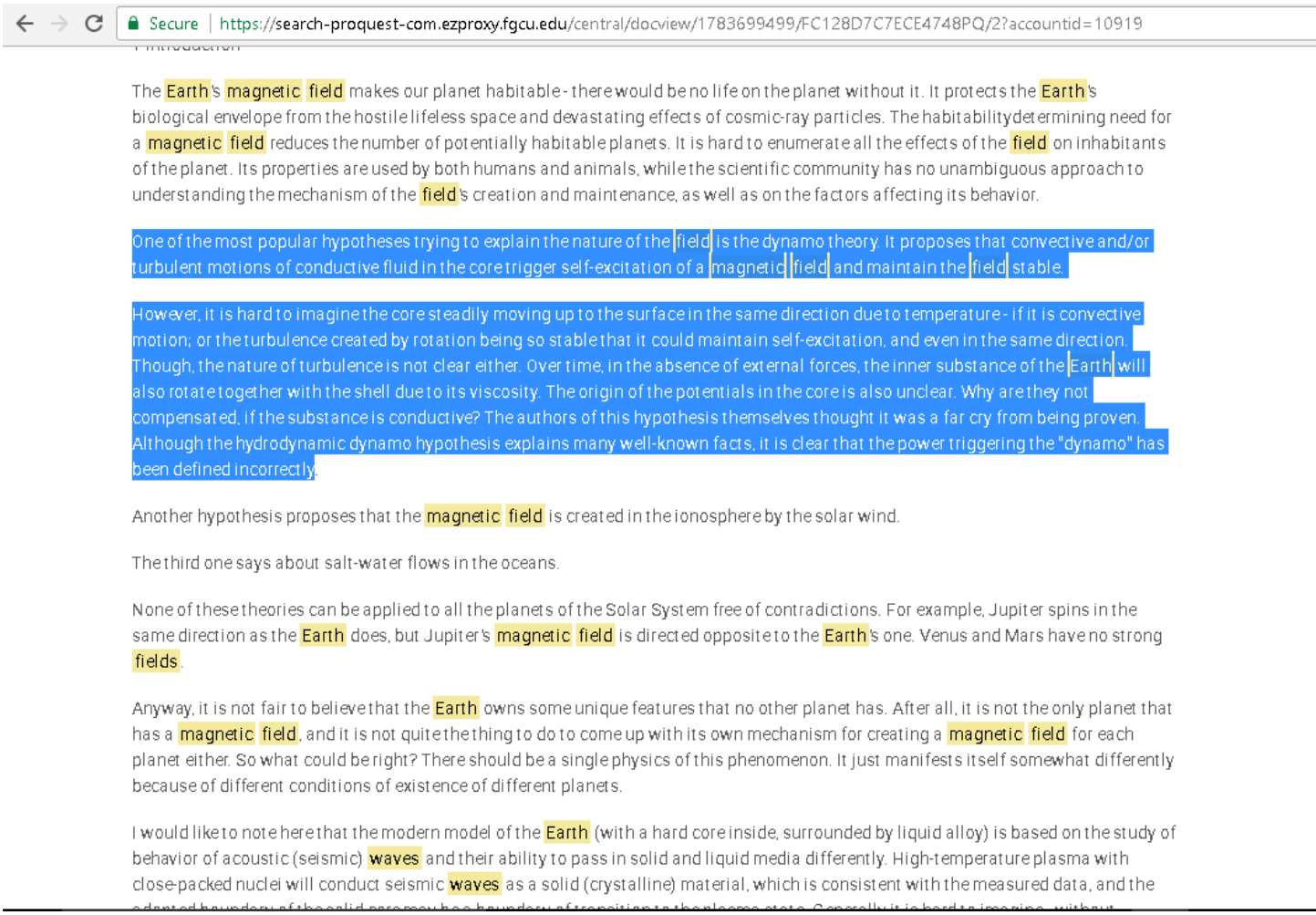
"There was a certain rich man, which was clothed in purple and fine linen, and fared sumptuously every day: And there was a certain beggar named Lazarus, which was laid at his gate, full of sores, And desiring to be fed with the crumbs which fell from the rich man's table: moreover the dogs came and licked his sores. And it came to pass, that the beggar died, and was carried by the angels into Abraham's bosom: the rich man also died, and was buried; And in hell he lift up his eyes, being in torments, and seeth Abraham afar off, and Lazarus in his bosom. And he cried and said, Father Abraham, have mercy on me, and send Lazarus, that he may dip the tip of his finger in water, and cool my tongue; for I am tormented in this flame. But Abraham said, Son, remember that thou in thy lifetime receivedst thy good things, and likewise Lazarus evil things: but now he is comforted, and thou art tormented. And beside all this, **between us and you there is a great gulf fixed**: so that they which would pass from hence to you cannot; neither can they pass to us, that *would come* from thence." (Luke 16:19-26)

Here Matty claims that it is only speculation to say that the outer core is liquid, and that there is no "scientific reason" why it couldn't be empty space. This couldn't be farther from the truth. The video only gave part of the reasoning behind why scientists claim that earth's outer core is liquid. If the core was empty then yes, S-waves would still not be able to propagate through the outer core and the seismic wave measurements would be the same. However, what we must now look at is earth's magnetic field. The only possible way for earth's magnetic field to exist is to have a liquid medium with ionized molecules flowing through it (this eliminates any possible criticism of scientists assuming the magnetic field is a result of a liquid core). How it works is that flowing electrically charged particles in earth's outer core, caused by convection currents and earth's rotation, create a magnetic field. Essentially, earth's core is a massive dynamo.[7] This is then further supported by how seismic waves

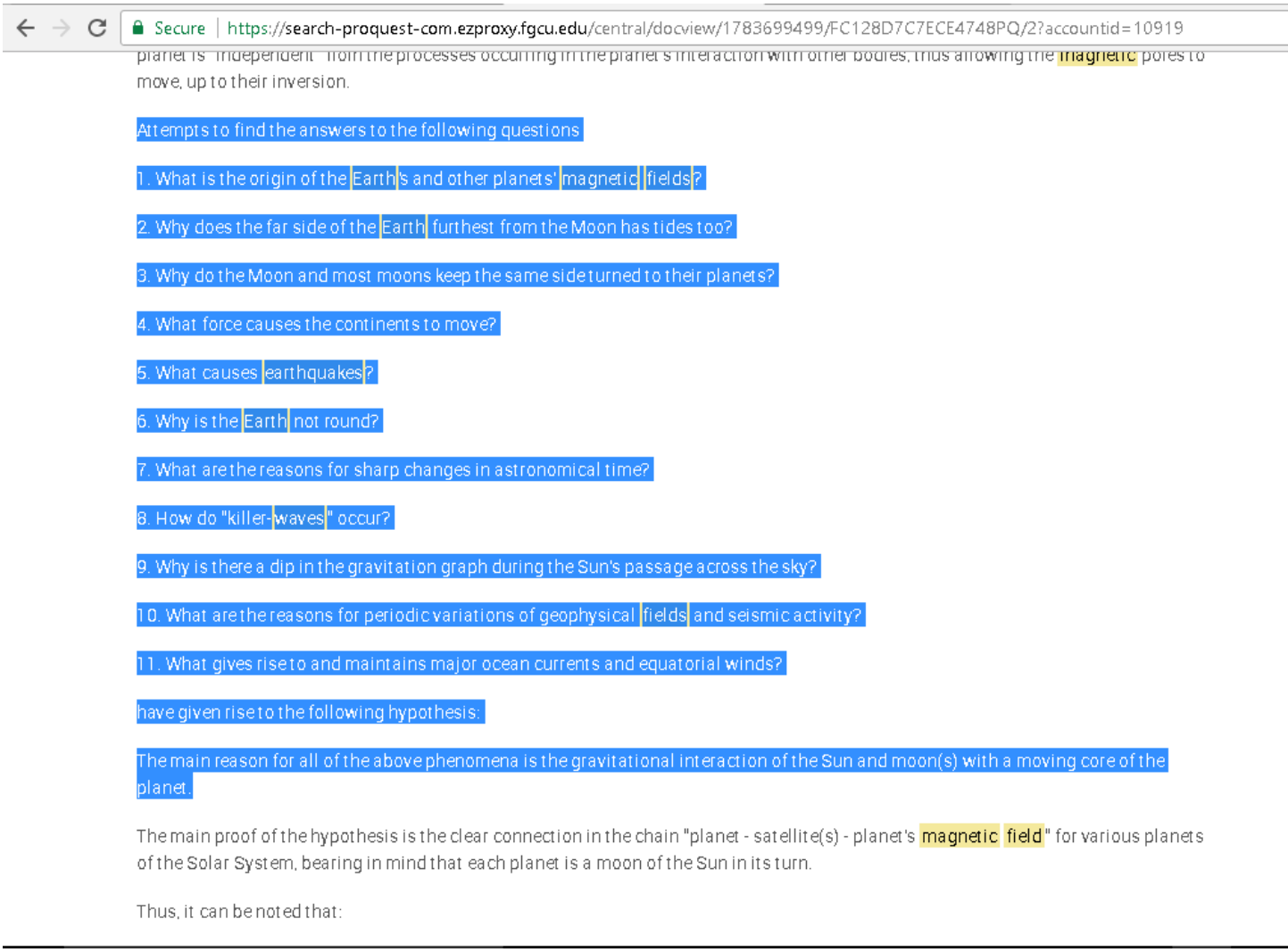
travel through the outer core. Thus, since we observe that earth does have a magnetic field, the outer core must be liquid in order to create it.[8] (**Referencing above image**)

More evidence lies in observations of the Coriolis effect. The Coriolis effect is used to explain tendencies in earth's magnetic field to drift westward.[9] Matty may try to say that this relies on the assumption that the earth is rotating to produce the Coriolis effect, but we know the Coriolis effect is real. The fact that we observe it shows that earth must be rotating to generate it. Where to we observe it? Well it has its effects on earth's atmosphere. It's the reason hurricanes spin counter-clockwise in the northern hemisphere.[10] If earth didn't spin then we'd observe a straight path of air circulation up and down the poles. The Coriolis effect is the reason that air circulation turns to the right in the northern hemisphere and left in the southern hemisphere. The rotation of earth is essentially self-evident in that we observe the effects created by it, and these effects could only be the result of the earth spinning which tells us that earth does in fact spin. Once again we are drawing conclusions based on evidence, no assumptions made here.

But we're not finished yet. In the interest of good science, I decided to dig a little deeper and search for some alternative explanations for earth's magnetic field, if there were any. And I came across one scholarly article on Proquest that takes a different approach. It discusses possible causations for the earth's magnetic field, including geodynamo theory (the one supported by this article), the ionosphere, and salt-water flow. The author begins by challenging the concept of a geodynamo being created in the core due to convection currents caused by temperature. The author goes so far as to say that the exact causation for the dynamo has been incorrectly defined.[11] (**Referencing below image**)

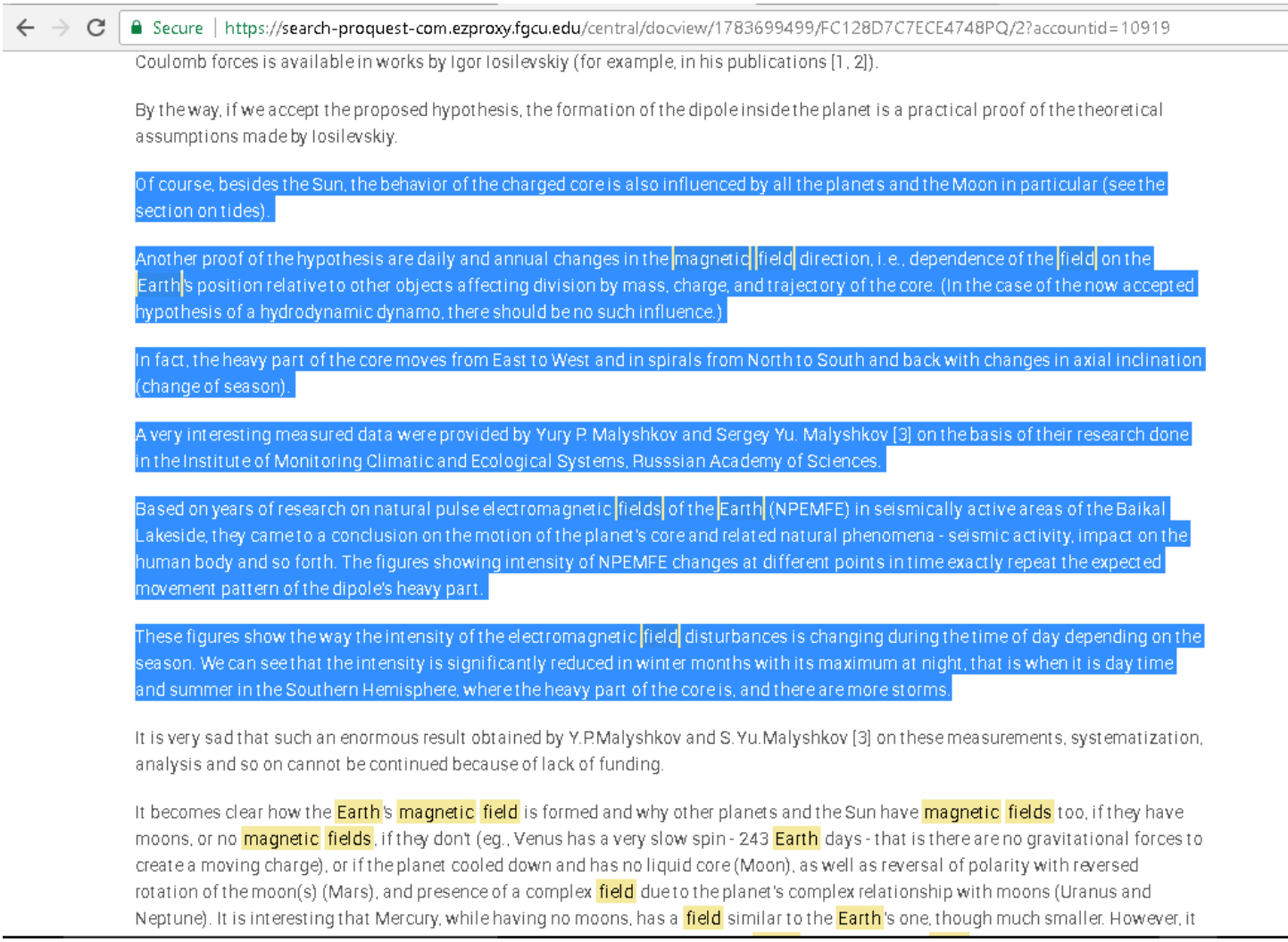


Continuing on, the author begins to present a case for how earth's magnetic field is generated based on gravitational pulls caused by other celestial bodies. This is the author's proposed hypothesis, essentially. Note that in his hypothesis he claims that there is a moving core. The author of this article is challenging the notion of a temperature driven geodynamo. He is proposing a gravity driven geodynamo instead.[11] (**Referencing below image**)



This is where it gets interesting. The author delves deeper into evidence for his proposed hypothesis. The moon has the greatest gravitational impact on the earth's magnetic field. This is because it is much closer to earth than the sun and even though the sun has a greater mass, the proportions of distance and mass are more impactful with the moon. Evidence includes the fact that there are "daily and annual" differentiations in the direction of the magnetic field due to the rotation and orbit of surrounding celestial bodies and earth. Further evidence is presented by the author by citing another

study in which models predicted the movement patterns of electromagnetic fields as a result of movement in the planet's core and other natural phenomena. The predictions were accurate.[11] This is not merely circumstantial evidence. Showing a clear relation between movement in the earth's core and electromagnetic field patterns via a predictive model that accurately matched real observations is DIRECT evidence. (**Referencing below image**)



Secure | https://search-proquest-com.ezproxy.fgcu.edu/central/docview/1783699499/FC128D7C7ECE4748PQ/2?accountid=10919

Coulomb forces is available in works by Igor Iosilevskiy (for example, in his publications [1, 2]).

By the way, if we accept the proposed hypothesis, the formation of the dipole inside the planet is a practical proof of the theoretical assumptions made by Iosilevskiy.

Of course, besides the Sun, the behavior of the charged core is also influenced by all the planets and the Moon in particular (see the section on tides).

Another proof of the hypothesis are daily and annual changes in the magnetic field direction, i.e., dependence of the field on the Earth's position relative to other objects affecting division by mass, charge, and trajectory of the core. (In the case of the now accepted hypothesis of a hydrodynamic dynamo, there should be no such influence.)

In fact, the heavy part of the core moves from East to West and in spirals from North to South and back with changes in axial inclination (change of season).

A very interesting measured data were provided by Yury P. Malyshkov and Sergey Yu. Malyshkov [3] on the basis of their research done in the Institute of Monitoring Climatic and Ecological Systems, Russsian Academy of Sciences.

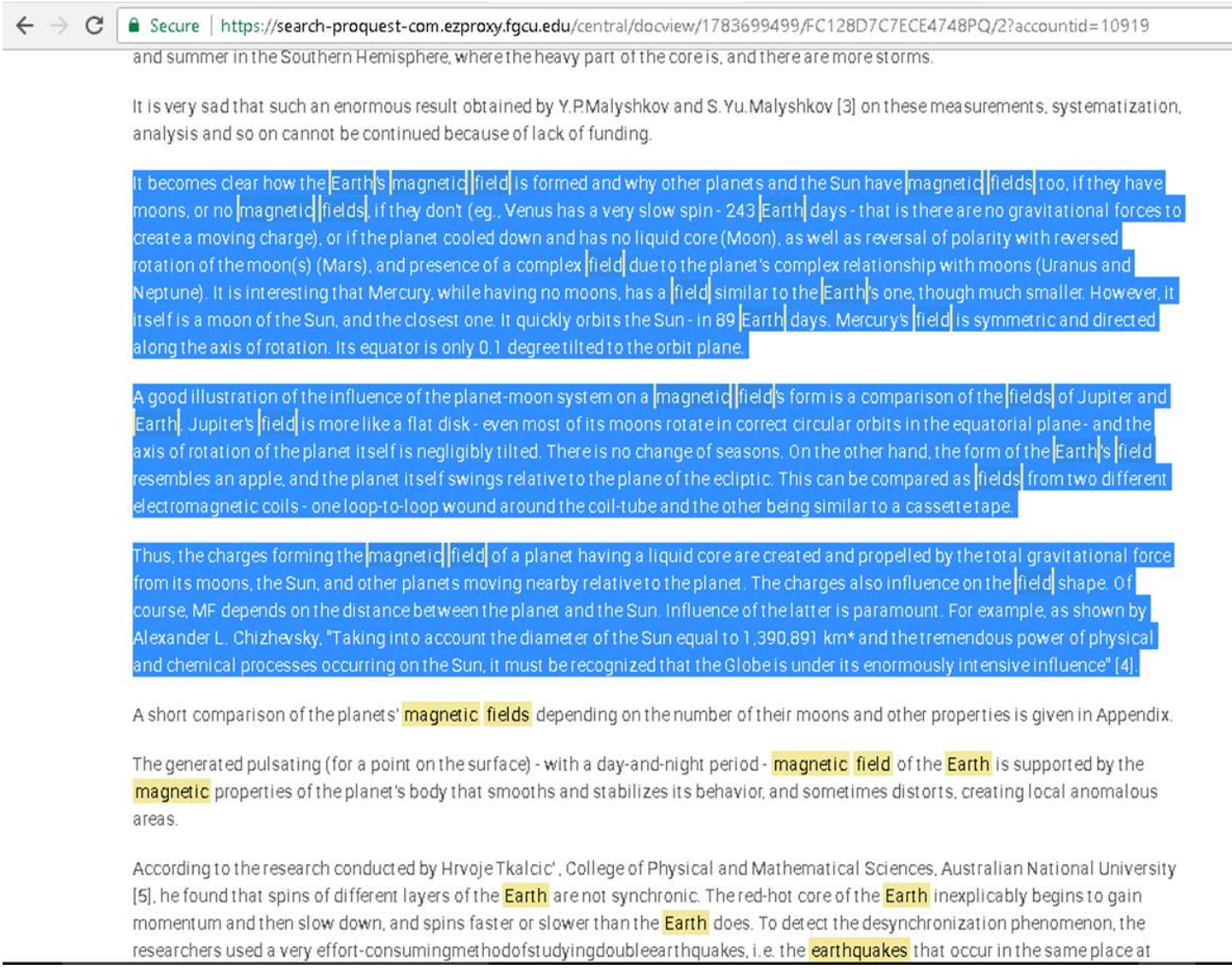
Based on years of research on natural pulse electromagnetic fields of the Earth (NPEMFE) in seismically active areas of the Baikal Lakeside, they came to a conclusion on the motion of the planet's core and related natural phenomena - seismic activity, impact on the human body and so forth. The figures showing intensity of NPEMFE changes at different points in time exactly repeat the expected movement pattern of the dipole's heavy part.

These figures show the way the intensity of the electromagnetic field disturbances is changing during the time of day depending on the season. We can see that the intensity is significantly reduced in winter months with its maximum at night, that is when it is day time and summer in the Southern Hemisphere, where the heavy part of the core is, and there are more storms.

It is very sad that such an enormous result obtained by Y.P.Malyshkov and S.Yu.Malyshkov [3] on these measurements, systematization, analysis and so on cannot be continued because of lack of funding.

It becomes clear how the Earth's magnetic field is formed and why other planets and the Sun have magnetic fields too, if they have moons, or no magnetic fields, if they don't (eg., Venus has a very slow spin - 243 Earth days - that is there are no gravitational forces to create a moving charge), or if the planet cooled down and has no liquid core (Moon), as well as reversal of polarity with reversed rotation of the moon(s) (Mars), and presence of a complex field due to the planet's complex relationship with moons (Uranus and Neptune). It is interesting that Mercury, while having no moons, has a field similar to the Earth's one, though much smaller. However, it

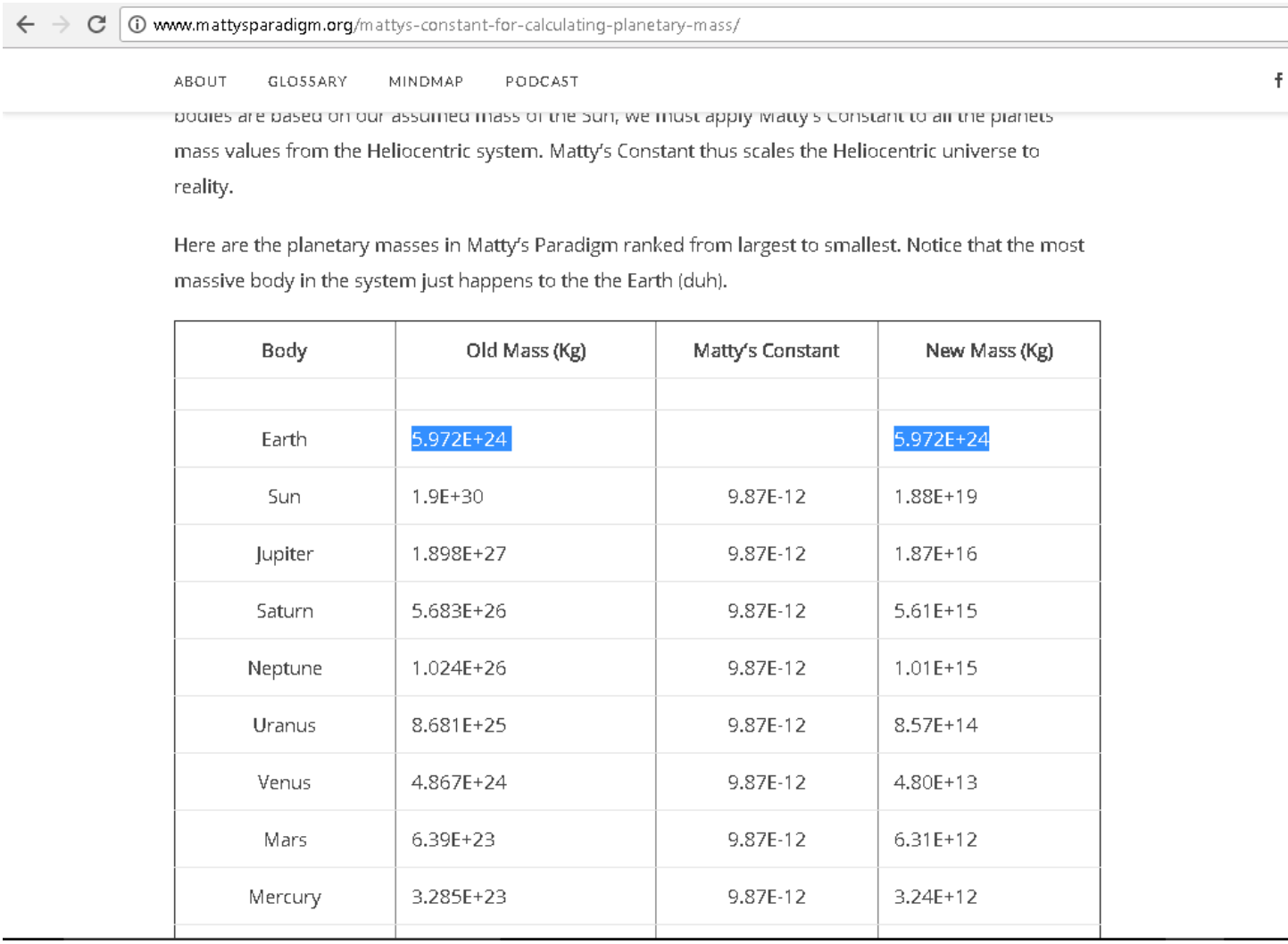
The author arrives are his conclusion that earth's magnetic field is created by gravity-driven movement in the LIQUID outer core. It cannot be denied here that a liquid outer core is the only possible cause for earth's magnetic field, as shown by all evidence gathered.[11] The rest of the scholarly article is supplemental evidence to support his conclusion regarding the tides and earthquakes. It would seem to me that earth's geodynamo is propelled by a combination of thermal convection and gravitational forces. This part remains somewhat speculative but what is clear is that earth's outer core is liquid and does create the magnetic field for earth. (**Referencing below image**).



Gravity: Oh but we are not done yet. There's more to the issue of having an empty outer core, though. Gravity is an important factor to consider when examining the validity of earth having an empty outer core. From the perspective of modern science, the mass of the entire core is 1.719 x10^24 kg, or 27.5% of the earth's mass. And the mass of the inner core is 1.162 x10^23 kg, or 1.86% of the earth's mass.[12] We can subtract the two to get the mass of the outer core and the percentage of earth's total mass it makes up. By subtracting 1.162 x10^23 kg from 1.719 x10^24 kg we get 1.603 x10^24 kg. This is 25.6% of the earth's mass!!! Almost 26% of the earth's mass!!! Now take earth's measured mass and subtract 25.6% to get the new mass for matty's paradigm. If we do (5.972 x10^24 x 25.6%) we get 1.528 x10^24 kg, which is the mass we need to subtract from earth's original mass. Now we subtract 1.528 x10^24 from 5.972 x10^24 to get 4.444 x10^24 kg as earth's new mass. Now that we have earth's new mass we must calculate its gravitational force. For this example we will calculate earth's surface gravity using the equation $g = G \times M/r^2$ where "g" is surface gravity, "G" is the gravitational constant, "M" is the mass of earth, and "r" is earth's radius.[13] If you do this calculation with earth's accepted mass you get 9.81 meters/second squared. However, we are using what would be matty's earth mass. Start with the exponent on the radius, so earth's radius is 6.378 x10^6 meters, when we square that we get 4.068 x10^13 meters. Now divide matty's earth mass by the previous calculation, so 4.444 x10^24 divided by 4.068 x10^13 meters. This gives us 1.092 x10^11. One more step, multiply this by the gravitational constant which is 6.67 x10^-11. So we do 1.092 x10^11 multiplied by 6.67 x10^-11 to get 7.29 meters/second squared as earth's new gravitational pull. Interesting, this is significantly less than the accepted gravitational pull, a little under 25%. Now we have something that we can test! We can directly measure what the acceleration of gravity is on earth using the free fall test and then compare our findings with the theoretical calculations made.[14] In the case of the theoretical calculations being used, they are 9.8 meters/second squared and 7.29 meters/second squared. Using the free fall test, which can be found in my works cited page, one can test for themselves the earth's ACTUAL acceleration of gravity. The test should yield approximately 9.8 meters/second squared if they follow the constraints of the experiment properly and make no errors. The test is accurate enough that even if errors are made, they won't be higher than several percent. You'd have to have a percent error of about 23% to get 7.29 meters/second squared. This is the nail in the coffin for matty's claim about the earth's outer core. The free fall experiment proves, effectively and DIRECTLY, that there is no possible way that earth could have an outer core without mass.

I checked matty's article on calculating planetary mass and he actually accepts the mass of 5.972 x10^24 kg for earth. This doesn't make sense to me, however, since he would need to account for the lack of mass in the outer core, but he hasn't. When scientists calculate the mass of the earth, 5.972 x10^24 kg, it includes the liquid outer core. In matty's paradigm, there is no liquid outer core. Where is this mass being accounted for? My only guess is that he would claim that the inner core, mantle, and/or crust are denser. If that's the case then we could test this theory by calculating how fast seismic waves would be expected to travel through the media at that density, and then actually measuring the velocity at which seismic waves travel through the media. The comparison of the theoretical calculation to the

actual results would indicate whether or not the theory is valid. Of course, perhaps matty has some entirely different way of accounting for the mass of the outer core. Maybe he would claim that hell expanding filled the gap and accounts for the mass, if so, where did that new matter come from? (**Referencing below image**)



www.mattysparadigm.org/mattys-constant-for-calculating-planetary-mass/

ABOUT GLOSSARY MINDMAP PODCAST

bodies are based on our assumed mass of the Sun, we must apply Matty's Constant to all the planets mass values from the Heliocentric system. Matty's Constant thus scales the Heliocentric universe to reality.

Here are the planetary masses in Matty's Paradigm ranked from largest to smallest. Notice that the most massive body in the system just happens to the the Earth (duh).

Body	Old Mass (Kg)	Matty's Constant	New Mass (Kg)
Earth	5.972E+24		5.972E+24
Sun	1.9E+30	9.87E-12	1.88E+19
Jupiter	1.898E+27	9.87E-12	1.87E+16
Saturn	5.683E+26	9.87E-12	5.61E+15
Neptune	1.024E+26	9.87E-12	1.01E+15
Uranus	8.681E+25	9.87E-12	8.57E+14
Venus	4.867E+24	9.87E-12	4.80E+13
Mars	6.39E+23	9.87E-12	6.31E+12
Mercury	3.285E+23	9.87E-12	3.24E+12

More Gravity: We still aren't finished, though. One more thing to consider is that if earth had to outer core it would literally implode! Allow me to explain: Basically what we're looking at is a gap between the inner core and the mantle in earth's early history, according to matty's diagram. The mantle is not liquid but it does behave like a very thick fluid over very long periods of time. On top of that the lower mantle layers have a higher viscosity than the upper mantle and so they might be more prone to "sinking". But a single point in the mantle crumbling would cause a ripple effect throughout the entire mantle. On top of that there is immense pressure on the lower mantle from the upper layers of the mantle and crust. And add on the effect of gravity which we will calculate here, it becomes clear that earth would indeed collapse into itself without a core for support. It gets even better though, matty believes that there was water deep underground in the early times. This water surely would have collapsed to the core caused destruction throughout the whole system, extinguishing the core and causing the upper layers of earth

to collapse. But for the sake of this example we'll be using the mantle instead of water, which is much more generous to matty's position. And after the earth collapsed on itself it would be left with a filled outer core and a smaller radius, no empty core.

I did some calculations to show how gravity would affect the mantle under the conditions matty proposes: We'll be using the earth's mass of 4.444 x10^24 kg that I calculated earlier as earth's mass when the war in heaven broke out and the hell part of earth was created. This is because there'd be a gap between the mantle and inner core where the liquid outer core would be (I'm assuming matty accounts for the mass of today's earth by saying that hell expanded to fill the void of the outer core, but that would not have been the case in earlier times and so the mass should have been less). We'll be using the formula for acceleration of gravity at depth which is $g(d) = (G \times M) \times (r-d)/r^3$ where "G" is the gravitational constant, "M" is the mass of earth, "r" is the earth's radius, and "d" is the depth we're measuring.[15] In this case the depth is about 2940 kilometers, or 2940000 meters, below earth's surface which is roughly the boundary layer between the mantle and outer core of earth, give or take a bit. Now all we have to do is plug the numbers in. The equation will look like this: [(6.674 x10^-11) x (4.444 x10^24)] x [(6.378 x10^6) - (2.94 x 10^6)] ÷ $(6.378 \times 10^6)^3$. It looks pretty confusing but we'll break it down. First let's multiply (G x M), so that's (6.674 x10^-11) x (4.444 x10^24) which gives us 2.9659 x10^14. Now let's do (r-d), so that's (6.378 x10^6) – (2.94 x10^6) which yields 3.438 x10^6. Now we must divide our (r-d) result by the radius of earth cubed, this will look like this: (3.438 x10^6) ÷ (2.594 x10^20) which equals 1.325 x10^-14. Finally, we multiply our (G x M) value by our $(r-d)/r^3$ value which looks like this: (2.9659 x10^14) x (1.325 x10^-14) to give us 3.93 meters/second squared. This gravitational effect isn't strong, but it IS still affecting the mantle at the boundary which means that the mantle would collapse to the core, no question about it. In fact, the rate at which the mantle would collapse would be faster than just 3.93 meters/ second squared since you have to take into account the pressure from the mantle layers and crust above the bottom mantle layer. On top of that, gravity increases as you move towards the surface so the upper mantle layers would be accelerating faster than the very bottom mantle layer, which is what we calculated here. If we wanted to use the earth's mass as 5.972 x10^24 kg instead then the calculated acceleration of gravity would be even higher.

Pressure: Gravity isn't the only factor needing to be taken into account here, though. Earth's mantle is under constant extreme pressure, 1.3 million atmospheres with today's measurements.[16] However, this is using earth's acceleration of gravity as 5.28 meters/second squared, which is calculated using the same method as above except with earth's mass as 5.972 x10^24 kg. We are, however, looking at earth in the early stages when the outer core was empty, according to matty's paradigm. Now we need to calculate pressure in the lower mantle and observe the effects such pressure would have on the mantle. The formula to be used will be P = d x g x h where "P" is pressure, "d" is density, "g" is acceleration of gravity at depth being measured, and "h" is depth.[17] We'll be using the acceleration of gravity calculated above for this as it will give us the pressure conditions present at the specific point in time we're looking at. The calculation will look like this: 5600 kg/m^3 x 3.93 m/s^2 x (2.94 x10^6) m. This gives us roughly 647,000 atmospheres of pressure at the bottom part of the lower mantle (note: this isn't quite the core-mantle boundary. I couldn't find a reliable source for a core-mantle boundary so I instead decided to go with the bottom part of the lower mantle which is less dense). This is significantly lower

than the pressure at the core-mantle boundary of today's earth with today's earth mass, but it's still quite high. At this extreme level of pressure, and with a void of significantly less pressure or no pressure at all, the mantle would almost explode into the gap, filling it instantly.

The truth is a planet with a hollow core like matty describes is almost impossible. It defies the nature of gravity and pressure. So matty, how exactly did the mantle just sit stationary there in the early times? Physics shows that the mantle as well as the crust should have collapsed to fill the gap and result in a small planet with no hollow core. This does not fit into matty's narrative, however, and I'm curious as to how he will work his way around this one. My guess is that he will just say that the pillars of earth keep it all together. Although I'm unsure how the pillars themselves would stay together as they are on the same exact foundation as the mantle in matty's diagram. It'd be like if I build a fortress on top of some pillars, but then removed the ground which the pillars were standing on. The whole thing would come crashing down, pillars and all; so it doesn't seem like pillars are a valid explanation. This is never minding the fact that matty hasn't ever presented evidence for pillars of earth except assuming a few landmarks to be pillars extending down to the core.

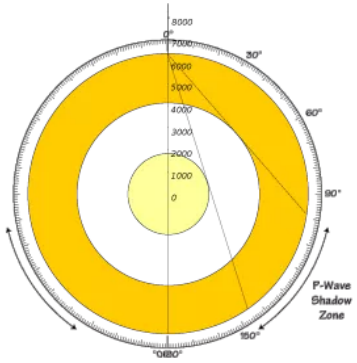
Needless to say, Matty is just plain wrong at this point. There is no question about it. My biggest question to matty out of this entire article would be how is earth's magnetic field generated, if not by a liquid outer core?

Matty's Article Continued:

www.mattysparadigm.org/?p=1115

ABOUT GLOSSARY MINDMAP

"There was a certain rich man, which was clothed in purple and fine linen, and fared sumptuously every day: And there was a certain beggar named Lazarus, which was laid at his gate, full of sores, And desiring to be fed with the crumbs which fell from the rich man's table: moreover the dogs came and licked his sores. And it came to pass, that the beggar died, and was carried by the angels into Abraham's bosom: the rich man also died, and was buried; And in hell he lift up his eyes, being in torments, and seeth Abraham afar off, and Lazarus in his bosom. And he cried and said, Father Abraham, have mercy on me, and send Lazarus, that he may dip the tip of his finger in water, and cool my tongue; for I am tormented in this flame. But Abraham said, Son, remember that thou in thy lifetime receivedst thy good things, and likewise Lazarus evil things: but now he is comforted, and thou art tormented. And beside all this, **between us and you there is a great gulf fixed:** so that they which would pass from hence to you cannot; neither can they pass to us, that *would come* from thence." (Luke 16:19-26)



So now we have a new structure of the current state of the Earth, from exactly the same data. It looks quite different. The core is larger, with a radius of about 1800 km rather than 1100. The inner surface of the lower mantle is located at a point approximately 4100 km from the core, much different to the 3600 kn in the original diagram. The great gulf that Abraham spoke of is over 2000 km wide.

This gives us the ability to calculate a value for the volume of material in the mantle. If the radius of the Earth is 6317 km, then it has a total volume of 1,083,206,916,845.75 m^3. If we subtract from that the volume of a sphere of diameter

Then just after his paragraph on earth's outer core he cites some more biblical scripture. Once again this goes back to his use of circular reasoning so I won't spend a whole lot of time on it. I will, however, say that upon reading this quote it seems that it's entirely metaphorical. The "great gulf" could easily be explained as separation from god and humanity, a spiritual separation, not physical. My point in this is that Matty could drop the whole "empty outer core" nonsense and his belief system wouldn't be harmed by it at all. That's just my suggestion to help him get one step closer to the truth. (**Referencing above image**)

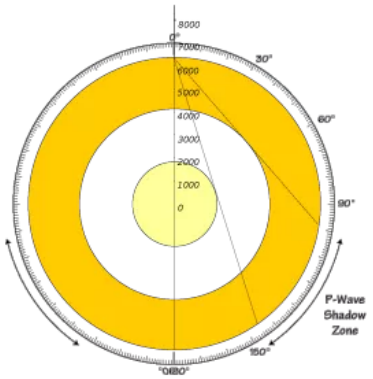
Here in Matty's article he changes the measurements of the boundaries of the inner core and mantle. Now, according to him, the mantle is smaller than originally, and the inner core is larger. How did he come up with these figures? He did so by drawing the straight lines from the seismic wave source. As I already made clear earlier, seismic waves DO refract and reflect at boundary layers. There is no questioning that. Straight seismic waves, like Matty has drawn, are not realistic. Therefore, Matty's

measurements of the layers of earth, which are based on the straight lines he drew, are just blatantly false. (**Referencing below image**)

www.mattysparadigm.org/testable-hypothesis-08-radial-shrinkage-and-the-pillars-of-the-earth/

ABOUT GLOSSARY MINDMAP PODCAST

you there is a great gulf fixed: so that they which would pass from hence to you cannot; neither can they pass to us, that *would come* from thence." (Luke 16:19-26)



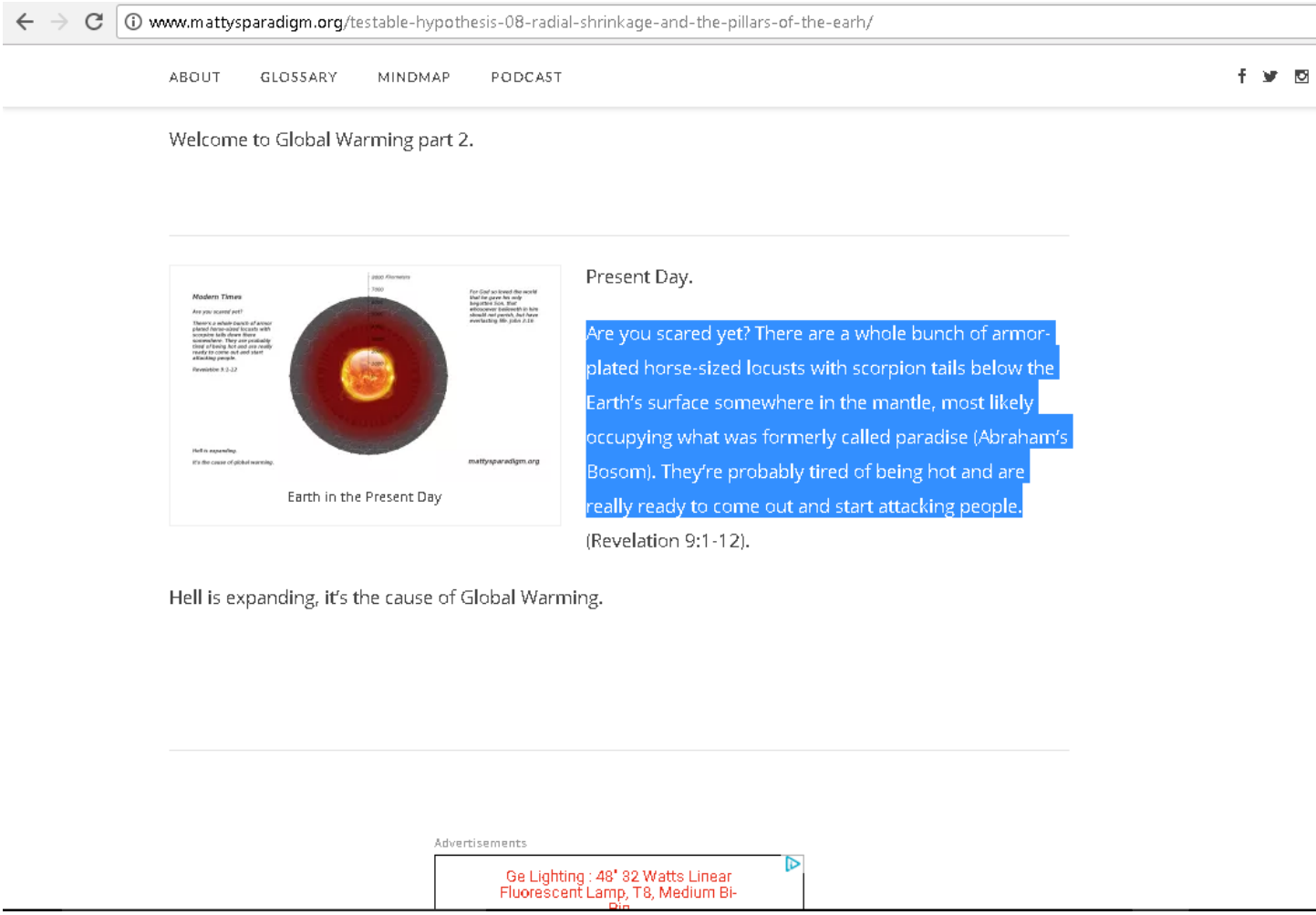
So now we have a new structure of the current state of the Earth, from exactly the same data. It looks quite different. The core is larger, with a radius of about 1800 km rather than 1100. The inner surface of the lower mantle is located at a point approximately 4100 km from the core, much different to the 3600 kn in the original diagram. The great gulf that Abraham spoke of is over 2000 km wide.

This gives us the ability to calculate a value for the volume of material in the mantle. If the radius of the Earth is 6317 km, then it has a total volume of 1,083,206,916,845.75 m^3. If we subtract from that the volume of a sphere of diameter 4100 km (1,083,206,916,845.75m^3) then we get a volume of the mantle material of 794,511,307,141.67 m^3).

This is where it gets interesting, and where we need to think about incorporating the Pillars of the Earth. The Pillars of the Earth are referred to in a few places in scripture. Flat Earthers get into a total mess over the pillars of the earth, but in Matty's Paradigm they aren't a problem at all, they are part of the Earth's internal structure. If physical features such as Monument Valley Utah, Pilot Mountain North Carolina and Saint Michael's Mount in the UK are examples of remnants of the pillars of the earth, then they represent the approximate height of the inner surface of the mantle in the Earth that God formed on the 3rd day.

This means that all his calculations of volumes of earth's different layers are false. Basically, the entire model he's using to represent earth in its early and modern form crumble because he made a terrible assumption about the behavior of seismic waves. Matty is also just assuming that these few landmarks he listed have structural bodies that extend down to the core. He's never presented any geological evidence for pillars in earth. Matty tends to accuse me of having no knowledge of the concepts I talk about, ironic isn't it? (**Referencing below image**)

The rest of Matty's article is more or less just a timeline for earth's change through the years. Although, matty neglects the fact that none of it is testable and that his calculations are already falsifiable because he made wrong assumptions about seismic waves. But there is one part in particular that I'd like to address. And that's his claim about horse-sized locusts living in earth's mantle. My first notion would be just to laugh, but I'm going to take him seriously here and investigate. (**Referencing below image**)



I dug around a bit on the internet to find any evidence of life in earth's mantle. Unsurprisingly, I didn't find much. The best I found was one study posted by like 10 different news outlets about a research team that found evidence for microbial life in mantle rocks on the ocean floor. This really wasn't enough, though. What we're looking for are called extremophiles, organisms that thrive in extreme conditions, such as temperature and pressure. The pressure and temperature of the mantle are catastrophically high. What horse-sized organism could live in such conditions? Well firstly the horse-sized locusts' armor plating would melt off their bodies. There would be no armor-plating possible, if we're assuming that they were wearing steel. Unless they had some magic armor or something, Matty's isn't very clear on that. Another way at looking at this is that the mantle is about as hot (much more hot at the boundary to the core) as most volcanoes. Scientists have never observed life living in volcanoes

like Matty describes living in the mantle. If Matty has some compelling evidence for life in the mantle in the way he describes it then I encourage him to bring it forth.

Conclusion: I know matty is probably just going to disregard everything said here. It wouldn't surprise me. Someone as close minded as him cannot imagine the possibility of being wrong. I've been wrong before. I used to be a Christian, close minded like the rest. I had to set my biases aside to see the truth. That's why this article is more-so for anyone who keeps an open mind and is willing to consider my arguments and evidence with intellectual honesty. I hope this will shed light on the atrocious misinterpretations of data, false statements, and gross assumptions made by matty.

Works Cited

1. "How do scientists know that the Earth's core is made out of Iron and not another magnetic metal? ." UCSB Science Line. Accessed July 31, 2017. http://scienceline.ucsb.edu/getkey.php?key=3318
2. Anuta, Joe. "Probing Question: What heats the earth's core?" Penn State University. Accessed August 02, 2017. http://news.psu.edu/story/141223/2006/03/27/research/probing-question-what-heats-earths-core
3. "SEISMIC REFRACTION." Seismic Refraction Geophysical Method 1 - Subsurface Geotechnical. Accessed July 31, 2017. http://www.geophysical.biz/seisrf1.htm
4. "Seismic refraction surveying ." Reynolds-international. Accessed July 31, 2017. http://www.reynolds-international.co.uk/uploads/files/10tssseismicrefraction.pdf
5. Ammon, Charles J. "Seismic Waves and Earth's Interior." Seimic Waves and Earth' s Interior. Accessed July 31, 2017. http://eqseis.geosc.psu.edu/~cammon/HTML/Classes/IntroQuakes/Notes/waves_and_interior.html
6. "Seismic Wave Behavior: Curving paths through the Earth- Incorporated Research Institutions for Seismology." IRIS. Accessed July 31, 2017. https://www.iris.edu/hq/inclass/animation/seismic_wave_behavior_curving_paths_through_the_earth
7. Office, Morgan Bettex MIT News. "Explained: Dynamo theory." MIT News. March 25, 2010. Accessed July 31, 2017. http://news.mit.edu/2010/explained-dynamo-0325
8. "How do scientists known what the center of the earth is?" UCSB Science Line. Accessed July 31, 2017. http://scienceline.ucsb.edu/getkey.php?key=2618
9. News-Letter, The. "The News-Letter." Since 1896. September 21, 2013. Accessed August 02, 2017. http://www.jhunewsletter.com/2013/09/21/debunking-myths-about-the-coriolis-effect-72945/

10. "Why do hurricanes go counterclockwise in the northern hemisphere?" Little Shop of Physics. Accessed August 2, 2017. http://littleshop.physics.colostate.edu/tenthings/Hurricanes.pdf
11. Danilov, Vladimir. "On the Nature of the Magnetic Field of the Earth and Other Planets." Proquest. January 2016. Accessed July 31, 2017. https://search-proquest-com.ezproxy.fgcu.edu/central/docview/1783699499/abstract/130E63E778C8439APQ/1?accountid=10919
12. Morancy, Tye. "Re: What is the mass and volume percentages of certian layers of the earth?" Re: What is the mass and volume percentages of certian layers of the earth? November 16, 1999. Accessed July 31, 2017. http://www.madsci.org/posts/archives/1999-11/943288749.Es.r.html
13. Twicken, Joe. "Calculate Surface Gravity." Calculate Surface Gravity Activity. Accessed July 31, 2017. http://nova.stanford.edu/projects/mod-x/ad-surfgrav.html
14. "EXPERIMENT: MEASURING THE ACCELERATION OF GRAVITY: ag." The Free Fall Experiment. Accessed July 31, 2017. http://mypages.iit.edu/~smart/martcar/lesson2/free-fall-experiment.html
15. "Acceleration Due To Gravity Above & Below The Earth's Surface." Physics. December 16, 2016. Accessed August 01, 2017. http://byjus.com/physics/acceleration-gravity-above-below-earth-surface/
16. Knittle, Elise, and Raymond Jeanloz. "Earth's Core-Mantle Boundary: Results of Experiments at High Pressures and Temperatures ." Sciencemag. Accessed August 2, 2017. http://www.sciencemag.org/site/feature/data/earthdynamics/se1291001438.pdf
17. "]Lecture 10: Introduction to Earth Structure and Energetics." Uta.edu. Accessed August 2, 2017. http://www.uta.edu/faculty/mattioli/geol_2313/lect_10_2313_Earth_structure_principles.pdf