

Our Earth

*Is it Flat or Spherical?
and
Is it Stationary or in Motion?*

*4th Edition
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Central Highlands Congregation of God

*In the beginning God created the heavens
and the earth.*

Genesis 1:1

*“When He prepared the heavens, I was
there, when He placed a curve on the face of
the deep”*

Proverbs 8:27

*It is He who sits above the curve of the
earth, and its inhabitants are like
grasshoppers; Who stretches out the
heavens like a curtain, and spreads them out
like a tent to dwell in.*

Isaiah 40:22

*He stretches out Zaphon over emptiness; he
hangs the Earth on nothing*

Job 26:7

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Introduction

A member of our congregation presented information from Jeremy James' *True Cosmology: The Earth that the LORD God of All Creation made for His Son* as evidence that the earth is not a rotating sphere orbiting the sun, but instead is a stationary flat disc.

As this person had been misled by James' article, and an internet search indicates that others have also been taken in by it, I have written Part 1 of this document as a refutation of his main arguments, as well as some other major Flat Earther claims and misunderstandings.

My references to his article are to the PDF version, downloaded 13 April, 2016 from www.zephaniah.eu.

Since then, I have also been sent a copy of J. A. Moorman's *The Biblical and Observational Case for Geocentricity (A Place rather than a Path for the Earth)*, which accepts that the earth is spherical and the universe is immense, but still claims that the earth is fixed in space and the universe revolves around it, much like the system proposed by Tyco Brahe in the 1590s. Part 2 presents a summary of Geocentricity and some of the problems with this view, both from Scripture and Science.

PART 1: IS THE EARTH FLAT OR SPHERICAL?

Biblical Considerations

Jeremy says he is a 'born-again Christian', and claims that God teaches that the earth is not a sphere. His article is thus presented as Biblical Truth which he says is supported by science. Sadly, "True Cosmology" indicates that Jeremy has frequent difficulties

interpreting Scripture and rarely understands science. It is also possible that he is intentionally deceiving people. I will assume the former, and work through his article from the start, commenting on his more important arguments.

He starts with two experiences which convince him that the earth is flat and stationary.

The first is a quote from Psalm 19, which I extend by a couple of verses:

The heavens declare the glory of God; and the expanse shows the work of His hands. Day to day utters speech, and night to night reveals knowledge. *There* are no speech or words *where* their voice is not heard.

Their measuring line has gone out through all the land, and their words to the end of the world. He has made a booth for the sun, and he comes out like a bridegroom from his chamber, and rejoices like a strong man to run its race. He comes out from *one* end of heaven, and his circuit *is* to the other end; and nothing is hidden from his heat.

The Instructions of Jehovah are perfect, restoring the soul. The testimony of Jehovah is sure, making the simple wise. The precepts of Jehovah are right, rejoicing the heart. The commandment of Jehovah is pure, enlightening the eyes. Psalm 19:1 to 8

In this Psalm, a poem credited to King David, we are told that God has made a booth (tabernacle) for the sun, and the sun comes out of its booth at dawn and races across the sky, heating the earth, and then sets.

Is it reasonable to conclude that this passage teaches us that the earth is flat? There is nothing here that claims the world is flat.¹ Or does it state that the earth is stationary? No, it does not. However, it does show that the sun looks like it moves around the earth. As Jeremy James' article shows, he supports the 'best' flat earth model in which the earth is essentially a flat disk with the North Pole at its center, while the Sun and other celestial bodies orbit several thousand miles above its inhabited surface. As will be shown, the flat earth model does NOT match David's description.

Psalm 19 and daily observation agree that in the morning the Sun appears to pop up out of some sort of cover that hides its brightness overnight, and then appears to move across the sky during the day, and then appears to withdraw into its cover at night, making things dark again. It is not unreasonable for King David to describe what he sees in this poetic way. But are his observations based on appearances due to his position on earth or is this objective fact?

Jeremy assumes it is objective fact. But as this article will explain, there are many elements of this description that conflict with his Flat Earth (FE) model. For example, David says the sun runs from one end of the heaven to the other. This must mean that it rises from behind the eastern horizon and sets behind the western horizon, which is something we see every day. But the FE theory has a sun which is always orbiting over the tropics, above a flat, circular earth. Their sun never reaches the horizon, and so it can never actually rise or set. (The maths verifying this are in the Sunrise and Sunset section). As their sun is always in the sky above the flat earth, it can never enter its 'booth' and give us a dark night.

¹ The only exception to this in all Bibles is in Thomas Matthew's 1537 version. In II Samuel 11:11, Uriah says that David's soldiers "lye in tentes on the flatt erthe". But this is a mistranslation. The Hebrew is **עַל-פְּנֵי הַ** **הַשָּׂדֶה** *alpaniy hesadeh*, which literally translates as "the face of the field". The Hebrew does not say that our earth is flat.

Furthermore, David never says the earth is flat. Jeremy merely assumes this. In fact, David's description fits closely with our modern understanding of the earth as a sphere, with the main difference being that the sun's apparent movement is actually due to the earth's rotation.

This difference is what is known in physics as the 'frame of reference'. From King David's 'frame of reference', which is where he is standing on the earth's surface, his description is valid, though with some poetic flourishes. And this is a geocentric frame of reference, as it centered on the surface of the earth. But from a frame of reference which is in space looking down at our solar system, one can soon see that the earth is indeed rotating. And if one was to stay there observing for longer, it would also become obvious that our Earth is also orbiting around the sun. Can you see that a geocentric frame of reference is only one point from which to view things, and it does not require the earth to be fixed in space, but merely the observer to be fixed on that point on earth's surface?

Some Flat-earthers claim that Revelation 20:9 says that the earth is flat. The Greek word is *platos*, and means a 'broad, open space'. It is usually translated as breadth. Likewise the Aramaic word used in this verse means 'an open space'. So the Bible says that Satan's army come against God's people on a large plain approaching Jerusalem. It is not a declaration that the entire Earth is flat.

This article will explore many details of both the flat-earth and sun-centered models and compare how they fit with both Scripture and actual observations of our Earth and solar system.

Historical Considerations

Jeremy suggests that down through time, most people have believed that earth is flat, so the idea that the earth is a sphere is a modern aberration.

However, the reality is that many people have believed the earth is spherical for a very long time. For example, Pythagoras, in the sixth century BCE taught that the earth was a sphere, and about 240 BCE (BC), Eratosthenes actually made measurements and calculated its circumference at about 44,000 km (27,340 mi), not too far off its equatorial circumference of 40,074 km (24,900 miles). The British historian Bede, about 700 CE (AD) wrote:

“We call the earth a globe, not as if the shape of a sphere were expressed in the diversity of plains and mountains, but because, if all things are included in the outline, the earth’s circumference will represent the figure of a perfect globe. ... For truly it is an orb placed in the centre of the universe; in its width it is like a circle, and not circular like a shield but rather like a ball, and it extends from its centre with perfect roundness on all sides.”²

The spherical earth was a common belief for more than the last two thousand years. The widespread myth that Columbus was opposed in his plan to sail west to reach China because he would sail off the edge of the world was a much later anti-Christian slur intended to make Christians look like fools. The real argument was about how large the earth’s sphere was, and whether Columbus’ ships were capable of carrying enough food and water for them to survive the trip. As it turned out, Columbus’ idea of the earth’s circumference was indeed too small, and they only survived because the intervening American continent was within their sailing range.

It is disappointing that people who want to be Bible-believing Christians accept and perpetuate these unbiblical flat-earth myths.

Now let’s examine Jeremy’s second experience that convinced him that the sun-centered solar system with a rotating spherical earth is false:

² Quoted from <https://creation.com/flat-earth-myth>

Can the Full Moon Be Seen Everywhere at the Same Time?

This time the ‘proof’ is only Jeremy’s defective understanding of how the moon orbits the earth. His self-professed inability to model how this works is due to a basic misunderstanding. He seems to understand that the time of the full moon is the moment during the moon’s orbit around the earth at which the moon and the sun are opposite each other from the perspective of the earth.³ He uses an example where he acknowledges that one full moon occurs at 11:44 AM, Paris time, but then claims that this has to mean that the full moon must therefore be visible in Paris at that precise time. He correctly points out that this is almost noon in Paris so the full moon could not be seen. It seems he does not understand how opaque spheres work, because on the opposite side of the earth, in Honolulu, at that same time it would be 11:44 PM, and the full moon would be clearly seen, high in the sky.

Jeremy then gives us his four ‘known facts of lunar motion’. His second “fact” is a restatement of the above error: “Every location on earth has sight of a full moon every month.” (Emphasis is Jeremy’s). Jeremy’s “fact” is actually false. The astronomical full moon is just an instant in time as noted above. The people on the half of the earth in darkness at that instant can see the full moon if the sky is clear. The rest of us will only see an apparently full moon, as the moon looks fully illuminated for many hours before and after the exact moment of the astronomical full moon while the earth rotates relative to the moon.

But this situation is devastating for Jeremy’s Flat Earth Model. Surely, on a flat earth, everyone should be able to see a full moon at the same time everywhere as it is always above the horizon. So, how

³ See Wikipedia, Full Moon or any astronomical almanac for confirmation. Whenever the three line up perfectly, we have a full lunar eclipse.

could it be seen in Honolulu, but not in Paris? Perhaps the moon was hidden behind a spherical earth.

Because of his faulty “known facts”, Jeremy concludes that he could not “reproduce the phases of the moon correctly”. I urge him to go back and fix his mistake; he would quickly find that it all works very simply, logically and elegantly. It also explains how we can see solar eclipses at some astronomical new moons and lunar eclipses at some full moons. The Flat Earth models cannot explain either adequately, and Jeremy offers us no alternative to the heliocentric model.

East and West

On page 5, Jeremy claims that we can only have “as far as the east is from the west” (Psa 103:12) if we have a flat earth. Really? They are opposite directions in both scenarios. And if you look at Jeremy’s Flat Earth map (Figure 5), you will see that his east and west both curve around on their starting latitude, so eventually they will meet on the opposite side of the North Magnetic Pole. This is very similar to what happens on a spherical earth, so I can only wonder if he hasn’t realised that his Flat World East and West must curve around his magnetic North Pole. And a more literal translation of Psalm 103:12 is “as far as the sunrise is from the sunset”, again supporting the opposite directions idea.

Walking To and Fro and Gravity Issues

Next, Jeremy claims that Satan can only walk to and fro, and up and down on a flat earth (Job 2:2). But I dispute that. On a sphere, gravity pulls us towards the center no matter where we are on it, so we can walk upright wherever we are. So we, as well as Satan, can walk east and west (to and fro) and North and South (up and down) easily.

But a flat earth disc would have its center of mass at its center. If the center of the disc was the North Pole, as it is in most flat earth maps,

and the disc had a radius of 10,000 km (6,214 mi) and was 3,300 km (2,050 mi) thick, the center of gravity would be 1,650 km (1,025 mi) below the North Pole. I selected this thickness so the flat earth would have a mass about the same as our spherical earth, which could allow it to retain an atmosphere (but see below). At the North Pole, one could stand vertically. But the closer one came to the edge of the disc, the more one would have to stand angled towards the outer edge to avoid being pulled over by gravity drawing us towards the North Pole. This gravitational effect would also drag some of the air, water and lava towards the “center” of the disc’s surface, pooling it up over the Arctic region.⁴

However, gravity would also pull the air around the edges of the disc and towards the center of the underside of the disc. Under the disc, away from the sun, would be intensely cold and the gases of our atmosphere would condense. This collapse into liquid ‘air’ would create a near vacuum on the underside of the disc. Within a few years, virtually all of our atmosphere would be sucked to the underside of the disc and liquified, and everything on earth would die. I am not aware of anywhere on earth where gravitational distortions like these are seen.

The Great Flood

While we are discussing gravity issues, this is one that needs serious consideration: The Flood in Noah’s time could not occur on a flat world.

And the waters prevailed exceedingly, exceedingly⁵ on the earth, and all the high mountains under all the heavens were covered. The mountains were covered and the waters prevailed upwards of fifteen cubits.⁶ Genesis 7:19 & 20

⁴ See “*Top 10 ways to know the earth is not flat*” online for more on this.

⁵ As in the Hebrew. The double ‘exceedingly’ is to show how extreme this event was.

Notice this carefully: All the high mountains were submerged to a minimum depth of 15 cubits (6.86 meters). On a spherical earth, with shallower oceans and lower mountains than today, the fountains of the great deep could achieve this, as shown in *In the Beginning*, by Walt Brown.

On a flat earth, Noah's Flood is impossible, as the flood waters would overflow the ice rim of Antarctica and run off the edge of the world. They could not submerge the tallest mountains by almost seven meters, as God clearly says they did. Which leaves us with a choice: do you believe in Noah's world-wide Flood, which the Bible specifically teaches and is supported by substantial evidence, or in a flat earth which exists only by misunderstanding the Bible and ignoring the substantial evidence refuting it?

Gravity Experiment and Our Atmosphere

Please be aware that many flat-earthers deny the existence of gravity, presumably to avoid having to explain why their flat earth models defy gravity. There is a very simple way to experience the reality of gravitational force. Just crouch down and jump upwards as hard as you can. Your muscles create a large force which pushes you up and away from the ground. If there was no gravitational force, you should just continue to float away from the earth at a constant velocity. But you will soon realise that there is indeed an invisible force acting on your body, which slows down your movement away from the earth and then begins accelerating you back down to the ground. That attractive force acting between your mass and the enormous mass of the earth is indeed what we call gravity. The direction and strength of gravity can be accurately calculated. And if you jumped straight up, you will notice that you come straight down. You are not dragged Northwards as would happen in a flat earth.

⁶ The draft of the Ark was 15 cubits, meaning that all the mountains were at least 15 cubits (6.86 meters) below the water surface, so the Ark could not strike them.

You have just conducted a simple experiment which shows that (1) gravity is real and (2) our earth is not a flat disc.

In a second article (*Answers in Genesis and our Flat Stationary Earth*), Jeremy claims that “the vacuum of space would very quickly suck all the air out of our atmosphere—since that’s what vacuums do!” That would be true if we were alone and out in space. But Jehovah, our God, has created a very special planet for us to live on. He has given it exactly the right mass for it to be able to hold on to its atmosphere. Just as gravity pulls us down against the earth’s surface, it also pulls down the molecules in the air with a force strong enough to keep these gases from floating off into space, but not so strong that our atmosphere becomes too dense for us to breath properly. Our atmosphere is densest near the earth’s surface as it has the weight of all the other air molecules above them pressing down on them, amplified by the fact that the strength of earth’s gravitational field decreases with distance. Gravity is why our moon has no atmosphere (it does not have enough mass to hold onto the gases) and why the atmosphere on Saturn would crush us (it has too much mass—and its gases are also toxic).

All the Kingdoms

On page 6, Jeremy claims that Satan could only show Jesus (Jeshua) ALL the kingdoms of the world from the top of a mountain if the world was flat. But let’s think about this: How high would such a mountain have to be, even on a flat earth, to see over all obstacles? Even from the top of Mount Everest, at 8,848 meters (29,029 ft) above sea level, the farthest you can see, even in perfect conditions, is less than 400 km (250 mi). But the disc world would have a diameter of 40,000 km (24,855 mi). Quite obviously, the mountain was really just theatrics; Jesus (Jeshua in the Aramaic New Covenant) was shown these kingdoms supernaturally, as it could not be done physically on either a flat or spherical earth. These same arguments apply to the tree in Dan 4:11.

Circle vs Ball

Jeremy's comments here are partly correct. He uses these two passages:

Isa 40:22 It is He who sits above the curve [circle] of the earth, and its inhabitants are like grasshoppers; Who stretches out the heavens like a curtain, and spreads them out like a tent to dwell in.

Isa 22:17-18 Indeed, Jehovah will throw you away violently, O mighty man, and will surely seize you and whirl you round and round and toss you like a ball into a broad country; there you shall die....

He correctly points out that “circle”, used in many translations in Isa 40:22 is from the Hebrew **חוג** *chuwg*, while ball in 22:18 comes from **דור** *duwr*. He claims that God could have used *duwr* in 40:22 if he wanted to teach us that the earth is a sphere. This may be true, but *chuwg* also means curve or roundness, which both fit excellently with the earth being a sphere. And let us look *chuwg* used in Proverbs 8:27 *When He prepared the heavens, I was there, when He placed a curve⁷ on the face of the deep*, Please think about this. Are the surfaces of the oceans flat, as the Flat Earth idea requires, or are the surfaces of the oceans curved, as the Bible clearly teaches?

I also think Jeremy misunderstands what has likely happened to give us Isa 40:22, where Isaiah is above the **curve** of the earth. I believe Isaiah was taken up into the heavens in spirit and shown these things and he then described them as well as he could in his own words. One astounding thing he saw was that the earth looked like a shining curved shape. Another was that the earth looked to be suspended on nothing, as Job says in Job 26:7. What he saw is familiar to us today from the many photographs taken of the earth from space, and indeed the earth does look like a disk when it is fully illuminated and we are

⁷ From **חוג** *chuwg*, meaning circle, curve, circuit or vault.

far enough away. But that does not prove that the earth has to be a disk rather than a sphere. Other photos taken of the earth from different angles relative to the sun show that it has bright and dark “phases” like the moon and planets, confirming that its shape is spherical.⁸

The Sun

Jeremy also quotes other passages referring to the sun rising and going down such as Psa 113:3 and Ecc 1:5. If one looks in the weather page of their newspaper, they will also find the times of sunrise and sunset listed. Does this mean the person who calculated those times believes that the earth is stationary and the sun literally rises, circumnavigates the earth and then sets? It does not. We use this language because it is how it looks from our frame of reference on the surface of the earth. And it would have looked just the same to the writer of the Psalm and to King Solomon who wrote Ecclesiastes. As I pointed out earlier, in none of the cases Jeremy quotes is it actually Jehovah God saying “This is how your earth and sun work”, but it is instead the earth-based observations of some of His human servants. It seems that Jehovah has chosen to leave some of it ambiguous so we can have the pleasure of discovering how He has made these things work. He has also left us to discover how He converted energy into matter, how He created and programmed DNA to make our bodies, etc, etc.

The Moon’s Light

On page 7, Jeremy attempts to prove from the Bible that the moon has its own light and does not merely reflect the light of the sun.⁹

⁸ <http://planetary.org/explore/space-topics/earth/pics-of-earth-by-planetary-spacecraft.html>

⁹ He is referring to the so-called ‘blood moons’ that are sometimes seen during total eclipses of the moon. The red light actually comes from sunlight filtered of its blue light while passing through the atmosphere on the edges of the earth (making our brilliant reddish sunrises and sunsets),

The only scripture that even appears to support him is Rev 6:12, where he makes the reasonable comment that if the sun is black as sackcloth, how does the moon have enough incoming light to look like blood. I suspect that the sun will still be giving off enough light that we can see its 'sackcloth', leaving some light to reflect from the moon. I am very interested in seeing how God does this.

The other scriptures he uses (Isa 13:10 and 30:26, Eze 32:7) actually confirm the link between the brightness of the sun and moon that he is trying to break.

What he totally avoids in this entire section is his explanation of the phases of the moon, even though he acknowledged they exist on page 2. If the moon has its own light, how can it possibly have phases, where only sharply defined -and changing- sections of the moon are illuminated? How does he account for the easily observed fact that when the new moon eventually becomes visible as a crescent after sunset, the crescent always points towards the location of the sun? In contrast, the sun, which really does produce its own light, never has phases. It is always bright all over.

On page 8, he also contends that the moon is not 1/7th the brightness of the sun. Wikipedia says the albedo of the moon is 0.136. This means that the moon reflects just under 1/7th of the light from the sun that strikes it, as Scripture says in Isaiah 30:26.

Foundations of the Earth

On page 10, Jeremy claims that creationists do not address the issue of the earth's foundations. I suggest that Walt Brown, with his hydroplate theory as expounded in his book "*In the Beginning*" (available free online) deals with this subject quite well. The problem here is Jeremy's insistence that the earth's foundation **MUST** be flat. The center of the earth is also the center of the

which also bends (refracts) the red light so it strikes the moon's surface and is then reflected back to earth.

foundation for the entire spherical earth which is built upon it. In 2 Samuel 22:16, we are told that when Jehovah exposes the seabed we can see part of the “foundations of the world”. That is to say, the foundations are everything underneath that support what we see on the surface. The Bible does not commit itself to either model.

A related claim is that the earth cannot be moved forever, based on Psalm 104:5. Therefore Jeremy concludes that the earth **MUST** be a fixed, stationary object. Again, this is a lovely poetic image given to us by one of Jehovah’s servants. But Jehovah tells us clearly that although this stability is the ideal, He will actually make the earth shake -to its very foundations- as required, in Psalm 82:5, Psalm 18:7, Isa 24:19, Mat 24:29 and Revelation 16:18. Yes, under normal conditions, the earth is not being moved. But there are many reasons to believe that this means that it is not being moved from its allocated, smooth and consistent rotation around its axis and its orbit around the sun.

Moon’s Face Towards Earth

On page 13, Jeremy seems to have issues with the observed fact that the moon always presents the same side to the earth. The answer is that the moon is tidally locked to the earth, which makes its period of rotation the same as the period of each orbit of the earth.¹⁰ I cannot see why this is supposed to be a problem for a spherical earth with a moon orbiting it, as this is common for many moons orbiting their planets, and it explains why we only see one side of the moon from earth. But he attempts to make this a problem because the length of individual lunar cycles can vary a little. The variations are due to a variety of causes, such as the eccentricity of the moon’s orbital path, disturbances from the sun and other planets, etc. Modern astronomical calculations quantify these influences to allow them to accurately predict where the moon will be at a given time, based on a sun-centered solar system. These calculations are used in our Biblical Calendar software to predict when the crescent new

¹⁰ https://en.wikipedia.org/wiki/Tidal_locking

moon will become visible. In contrast, there are no flat-earth calculations explaining the motion of the moon and planets that I can find and Jeremy makes no attempt to explain how and why we only see one side of the moon in his flat-earth model.

Moon Uniformly Bright

On page 14, Jeremy falsely claims that the moon is uniformly bright, then says this ‘proves’ that it produces it’s own light and is flat. Careful examination of the moon using light meters have shown that the moon is duller towards its apparent ‘edges’.¹¹ And how could a self-illuminated moon have phases, where only the part of the moon facing the sun remains illuminated? The self-illuminated Flat Earth moon would have to always be fully illuminated.

Seeing a Full Moon During the Day

Jeremy uses a photo showing a “full moon” just above the earth’s surface and just before sunset to prove the sun does not light up the moon. Really? Even his own comments show how wrong this idea is. The full moon does not normally line up exactly with the earth and sun, so one would expect to be able to sometimes see a ‘full moon’ just before sunset as long as you had unobstructed views in both directions. And of course the sun was setting in the west, behind the cameraman, while the moon was rising in front of him in the east, allowing the sun to fully illuminate the visible face of the moon. And when the sun, earth and moon do align perfectly, we have a lunar eclipse. Conversely, when the sun, moon and earth align perfectly, we have a solar eclipse. Again, there is no adequate flat-earth explanation for how both of these events can happen.

¹¹ Also see <https://answers.yahoo.com/question/index?qid=20120203012217AAV84Zm>

Seeing the Moon Clearly

Jeremy claims that because we can see the moon's face clearly, it proves that it is not very far away. Let's consider the facts: We can see the moon clearly when it is high in the sky, and not so distinctly when it is near the horizon. This is because when we are looking up, we are looking through a relatively thin layer of dense air. When we look at the moon close to the horizon, we may be looking through a hundred kilometers (sixty miles) or more of dense air which is often unstable and full of dust and moisture which distorts what we are attempting to see. In contrast, the empty space between the top of our atmosphere and the moon has virtually no effect on the clarity of the moon. The Hubble space telescope was placed in orbit above our atmosphere for exactly this reason. This is also why the sky directly above us is a darker blue during the day than the paler blue sky near the horizon. There is less air to scatter the blue light above us than near the horizon.

The distance to the moon can also be confirmed by bouncing laser light off it. The light takes about 2.6 seconds to travel there and back. At 297,000 kilometers (186,000 miles) per second by 1.3 seconds, the moon is about 386,000 kilometers (250,000 miles) from Earth. No flat earth models can explain this 2.6 second delay.

Moon-lit Clouds

On page 15, we are asked why are the clouds nearest the moon the most brightly lit? Jeremy says this is because the moon is very close to us. Common sense says it is because these clouds are more directly between us and the moon, so the moonlight scattered by them is mostly still directed towards us. We can see the same effect from approaching car headlights in fog. It does not indicate how far away the moon is.

Sun Rays at Angles

Jeremy claims this is evidence that the sun is quite close to the earth. However, he is showing us crepuscular rays. The light is essentially parallel, but appears to be coming at different angles due to parallax-like perspective effects. The effect is often very striking, making it look like the sun is just beyond the clouds. But the heat and gravitational force of our sun that close would both incinerate and tear the earth apart. (See Wikipedia) Even the smallish distances to the sun used in most flat earth models are much too far for the sun rays effect to be real.

Polaris at the North Pole

Jeremy claims that Polaris could not remain stationary above the North Pole in a rotating sphere orbiting the sun. He is correct. Polaris does not align exactly with the earth's axis, being about 40 minutes of arc out of line. Each day it makes a very tiny circle around the true axis position, and over decades, it will move further from the North Pole axis. But for most purposes it can be regarded as stationary. Yet this arc, and the more pronounced ones as one moves further from the Pole Star, are powerful indications that the earth does indeed rotate.

Jeremy gives a nice photo of star trails taken from California, with Polaris at the center. This could perhaps fit with a common flat earth model where there is a dome above the sun and the earth that is centered above the North Pole and rotates from that point. The dome concept is largely based on the KJV translation of *raqia* as a 'firmament' in Genesis 1. Most other translations instead use *expanse*, which more closely matches the meaning of the Hebrew and does not invoke the concept of a solid dome, and still explains these rotating star trails.

The photo in Figure 1 is taken in Australia, showing star trails centered around the South Pole axis, which does not have a Pole Star,

and all of the other stars are also different to those near the North Pole. The Magellanic Clouds can also be seen. This photo raises a profound question: How can a flat earth that only has people living on the top of it, have two different star axes facing in opposite directions? And not only that, the northern star axis rotates counterclockwise, while the southern star axis rotates clockwise as we watch them. These two sets of star trails can only happen if we are living on a rotating globe.



Figure 1: Southern Hemisphere (South Pole) Star Axis

Jeremy also suggests that the stars are revolving around the earth. Relativity makes this impossible. Even our sun would have to travel at 2% of the speed of light to make an orbit around the earth in one day. The nearest star, Proxima Centauri, at 4.26 light-years away, would have to travel at 4880 times the speed of light to circle the earth in a day. As travelling even at the speed of light is impossible, this is clearly not correct. Read more on this topic in *The Warp-Speed Universe*, on page 76.

Rockets in Space

Jeremy claims that the random motion of gas molecules exiting a rocket engine and the ineffectiveness of aerofoils in space makes space flight impossible. However, the trillions of molecules exiting a rocket nozzle means that the random motion of any single molecule becomes insignificant and the resultant overwhelming force can be carefully directed by a well designed nozzle. Simple nozzles are used at every fireworks display which uses rockets to lift fireworks to their desired position in the sky where they are ignited. Although the lack of active aerofoils does make directional control more difficult in space, small angled rocket engines are used to make corrections to the spacecraft's flight path.

Melting Satellites

Jeremy also claims that spacecraft will rapidly overheat and be destroyed by radiation from the sun. Though it is true that the solar radiation is more intense above the atmosphere, all of these engineering issues were solved long ago. That is why we have such things as satellite navigation and the Hubble space telescope. Though Jeremy does not tell us why he wants space travel to be impossible, I suspect it is an attempt to discredit the many photos of the earth taken in space (eg- our daily weather report images shown on TV) that clearly confirm it is a sphere orbiting around the sun, as noted on page 5.

Is the Horizon at Eye Level When One Goes High?

Jeremy does not clearly explain what this argument is about: In a flat world, the horizon is incredibly distant, so being a few kilometers or miles above the surface, perhaps in a jet, will have minimal impact on the horizon, which will still appear to be at eye-level, even though

directly under the jet one can see that the ground is a long way down. But in a spherical earth, at the same heights, the earth's surface will be curving away from you, so the horizon will appear to be lower than eye-level. Like everyone who has flown over an ocean in a commercial jet, I have observed that the horizon is BELOW eye level. And if you are ever lucky enough to fly above 12,000 meters (about 40,000 ft), you can see that the horizon is gently curved, especially if you are looking across an ocean which has no disrupting mountains, etc. This confirms that the world is both round and quite large.¹²

Air Travel and Wind Speed

There are two issues here: First, if the air was not rotating at the same speed as the earth's rotating surface it is above, it would indeed 'wrack' the earth. But our atmosphere is an essential part of the earth, and rotates with it.

Jeremy correctly indicates the effect of the jet streams on high altitude aircraft. But he apparently fails to understand what causes the jet streams and our trade winds and westerlies on the surface. These are part of the large scale air circulation system on the earth, which comprises of three cells in each hemisphere (See the *Earth's Atmosphere* section in Part 2, pages 66-68 for more on this topic). The earth's rotation is a major driver of these cells. The reason that this circulating air does not shred the earth's surface is, contrary to Jeremy's opinion, that it speeds up as it moves towards the equator, and slows down as it moves towards the poles. This is a very slow process, which takes weeks to cycle the air around just one cell. The lags in this speeding up process are part of what causes the prevailing winds and jet streams. I can not think of any reason why these

¹² This may give you some feel for how large our earth really is: If a person was able to walk around the earth's equator, with no obstacles to slow them down, and they walked at an average speed of five km/hr (3.1 miles/hr) for ten hours per day, six days every week, it would take them three years and one month to get back to their starting point.

complex circulations would happen on a stationary flat earth, nor does Jeremy offer any explanation.

Canal Locks and Suez

On page 18, Jeremy mentions the Grand Union Canal in the UK, which is an interesting engineering feat. The canal is 220 kilometers (137 miles) long and its 166 locks can lift boats from sea level in London to 140 meters (460 feet) above sea level in Birmingham. And if all the locks were opened, in both flat and round earth models, all the water would drain to the lowest level. I don't understand why Jeremy used this example, as it cannot distinguish between the two models.

A more relevant example which is used by other flat-earthers is the Suez Canal. It is shorter at 164 kilometers (102 miles) long, but it has no locks to modify its water levels. Their usual claim is that on an earth with a 6371 km (3959 mile) radius, the canal must have a dead flat bottom for its entire length to maintain a useful depth of water, requiring a cut that is 1.9 kilometres (1.2 miles) deep at the center of the canal, yet the water is only 7.9 meters (26 feet) deep, and the cuttings not much more than that. This sounds like a devastating blow for round-earthers, as the trench never even begins to approach this depth. But this 'requirement' is entirely false. It is based on a flat-earth idea being imposed on a round earth: they claim that the oceans are truly, straight-line flat.

The round earth model says that the oceans are all a uniform distance from the center of the earth, so their surface is smoothly curved, not flat. This means that for the Suez Canal to have a consistent depth of water along its entire length, the bed of the canal must be curved to match the curvature of the earth. And how did the surveyors make it curved? It could be very simple. Every time they moved their theodolite and re-levelled it, that process realigned it with the center of the earth. This would have been done hundreds of times along the length of the canal, so the bottom of the canal could have been dug as

hundreds of individual flat sections each less than 800 meters (half a mile) long, each one at a tiny angle to the one before it, with a maximum error of less than 10 centimeters (4 inches) from the curve. But as the surveyors worked using the concept of a curved earth, they also made additional adjustments to ensure the floor of the canal remained even closer to the curvature of the earth so it would fill to the correct depth.

A common flat-earth claim is that surveyors do not need to adjust for the curvature of the earth, therefore proving that it is flat. This link is one of many that demonstrate that the earth's curvature and light refraction near ground level are serious issues for surveyors and civil engineers that they must deal with:

<https://www.aboutcivil.org/curvature-and-refraction.html>

If one could run a truly straight line from the middle of the canal to its two ends, the straight line would be about 960 meters (0.6 miles) above the water level at each end. Interesting, but there are simpler ways to demonstrate the earth's curvature. In his next "anomaly", Jeremy inadvertently does just that for us.

Are the Seas Curved?

Jeremy's ultimate proof that the earth is flat is what he claims to be a photograph of the Isle of Man taken from Greystones, Ireland, which are 136 kilometers (85 miles) apart. Jeremy claims that the Isle of Man should be 2,800 feet (853 meters) below sea level if the earth is spherical, using his somewhat inaccurate curvature formula. This claim made me take notice, as it was his first semi-plausible claim which, if true, suggested that perhaps the earth wasn't round. First, I used a more accurate formula to calculate the expected drop for the Isle of Man, and found that the drop below a curved ocean horizon would be about 1350 meters (4,429 ft). As the largest mountain on the Isle is only 620 meters (2,034 ft) high, it should appear to be 730 meters (2,395 ft) below sea level, making it totally invisible. So how could the Isle of Man be clearly visible in his photo on page 23?

The answer is clear from Jeremy's own photos and maps. His page 23 photo shows a fairly narrow gap between the eastern end of Howth Head and the western end of what Jeremy claims is the Isle of Man. On the lower map on his page 24, he shows how there should be a slight overlap between the east end of Howth Head and the west end of Lambay Island as viewed from Greystones. But in his photo on page 21, he shows a photo of Howth Head in which he mistakenly identifies the second ridge of Howth Head, clearly behind the southern ridge of Howth Head as Lambay Island, rather than to the right of Howth Head. He then uses his misidentification to claim that the island seen in his page 23 photo is the Isle of Man.

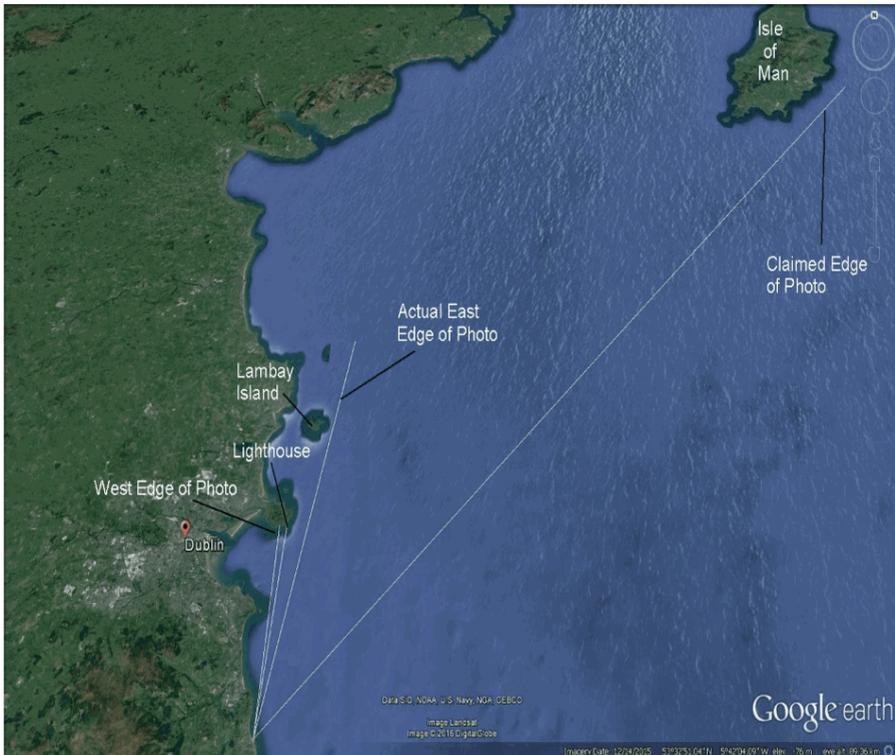


Figure 2: Actual Width of Jeremy's Photo of Howth Head and Lambay Island, With the Required Angle to Isle of Man Indicated.

It is abundantly clear from his upper map on page 24 that the Isle of Man would in fact be two or three entire photo widths to the right of the photo in which he claims to see the Isle of Man. If you take a close look at the photo, and see how little of the coastline is seen to the west of the Howth Head lighthouse, it is impossible for the Isle of Man to be in this photo in the small distance it covers to the east of the lighthouse. The actual photo width is marked in Figure 2, and the extra line far to the east is what would have been required to include the Isle of Man.

But it is the perfect photo width to include Lambay Island. Not only is Lambay Island in the photo, but the water gap that is visible between Howth Head and Lambay Island actually demonstrates the earth's curvature. This occurs because the western part of Lambay Island is fairly low. The earth's curvature "drops" this lower western part of Lambay Island below the 'horizon' formed by the intervening curved sea surface, only allowing us to view the more elevated eastern part of the island.

The distance to Lambay Island is 40 km (25 miles), resulting in a curvature drop of about 97 meters (318 ft -it is actually about 84 m (275 ft) if you allow for typical refraction of light in the lower atmosphere). As the eastern plateau on Lambay Island is 127 meters (417 ft) high, it leaves the highest 30 meters (98 ft) of the island visible (actually 43m (141 ft) visible, adjusting for refraction). The eastern end of Howth Head is also 'below' sea level (as is the lowest part of the mound that the lighthouse is built on) increasing the apparent water gap. It is likely that this photo was taken at high tide, which would also increase the width of the apparent water gap between Howth Head and Lambay Island.¹³ Explore this with Google Earth and you will see how it all works. Despite being notified about his misidentification, a year later Jeremy used another

¹³ Also note that the intertidal zone along the land's edge is shown in a greenish tone on the Google Earth map, which makes the water gap look smaller than it really is.

photo of Lambay Island, but this time without including Howth Head, and again calls it the Isle of Man in his *AIG-Flat Stationary Earth* article. It is disappointing to see such misguided persistence.

By the way, Jeremy's claim of absolutely flat oceans actually contradicts scripture, as shown on page 10, in an accurate translation of Proverbs 8:27: "*When He prepared the heavens, I was there, when He placed a curve¹⁴ on the face of the deep,*". Do you see that Jeshua says that Jehovah God made the surface of the oceans curved, not flat?

As a contrast to Jeremy's 'photo' of the Isle of Man, I am including a photo of Melbourne, Australia taken across Port Phillip Bay from The Esplanade at Portarlington (Figure 3). The camera was about seven metres above water level and the distance is about 42 kilometers (26.25 miles) to the central high-rise buildings. In the photo, one can clearly see the 'horizon' line of the water in the bay, which is about 10 km (6 miles) from the camera. The horizon line, created by the curve in the water of the bay, is obscuring all of the port facilities, lower buildings and land on the Melbourne shore in front of the skyscrapers and also the lower parts of the skyscrapers. On a flat earth, this sharp water line should not exist and all of these lower Melbourne shore items should be clearly visible in front of the skyscrapers. Google Earth can confirm what is missing.

¹⁴ From **לִּוּי** *chuwg*, meaning circle, circuit, vault or curve.



Figure 3: Melbourne Skyscrapers Photographed from Portarlington. All of the wharves, parks and lower buildings in front of the skyscrapers are hidden below the Port Phillip Bay ‘horizon line’. Photo courtesy of Matthias Siegel, at mattdownunder.com.

Likewise, Mount Disappointment, seen behind the central skyscrapers, is 800 metres (2,625 ft) high and 90 km (56 miles) from the camera. Even allowing for ‘shrinking’ due to the extra distance, it should still project a little above the tallest towers on a flat earth. But it is well below them, and by the amount predicted by curved earth calculations.

A common flat-earth claim is that if you use magnification, you will be able to see what appears to be missing in photos like the one above. We tested this claim using a Canon Powershot SX540 HS camera at maximum magnification. We took matching photos of some of Melbourne’s newest and tallest buildings from two locations about a kilometer west of Matthias’ photo. These locations allowed us to take one photo at 1 meter (3.3 ft) above water level (at 38.11258S, 144.65739E) and the other in the park above it at about 27 meters (88.6 ft) above water level (at 38.11453S, 144.65647E). Viewing the buildings from near the bay water level and from a nearby height should allow you to see some of the things hidden by the water’s curvature in the lower photo if the earth is a sphere.

The two photos are attached as Figure 4. Though the atmosphere and the photos are not as clear as we wanted, you can see distinct differences. First, the water line in the right photo, taken at 1 meter, shows some nearby waves and the horizon 'water line' which was only 3.6 kilometers (2.24 miles) from the camera. You also see the upper sections of some high-rise buildings above the water line. In the left photo, taken from the 27 meter (88.6 ft) height, the horizon water line looks straight because it is about 18.5 km (11.5 mi) away. The white lines mark where the water horizon is in the other photo. Everything between the white lines are additional objects that were hidden in the 1-meter photo due to the curvature of the water, thus verifying that the earth is a globe. One can see about an additional 20 floors of buildings, which is exactly what earth curvature calculations predict for these parameters. (eg. <https://dizzib.github.io/earth/curve-calc/>)

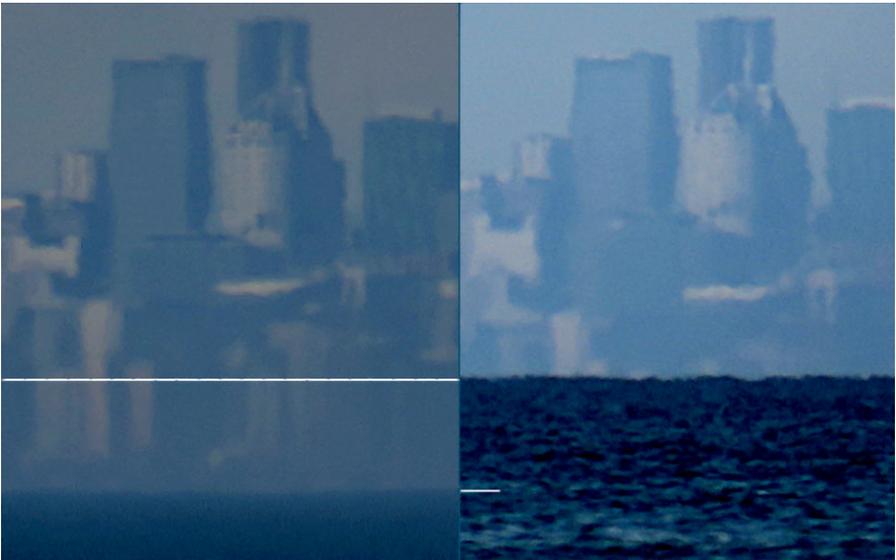


Figure 4: Skyscrapers in Melbourne, Australia viewed from 27 meters (left) and 1 meter (right) above Port Phillip Bay water level from Portarlington, 42 kilometers away.

Using good binoculars will allow you to see this curvature drop wherever you can find a body of water with a 30 to 50 km (18 to 31 mi) gap to view across and distinctive items on the far shore to help you identify how much is hidden. If you can also find high and low viewpoints, it will make this curvature effect even more obvious, as in Figure 4.

Lighthouses in the Distance

Though Jeremy doesn't use this argument directly, a common FE claim is that lighthouses can be seen too far away for the oceans to be curved. For example: "The Isle of Wight lighthouse in England is 180 feet [55 m] high and can be seen up to 42 miles [68 km] away, a distance at which modern astronomers say the light should fall 996 feet [304 meters] below line of sight." (<https://www.theflatearthsociety.org/forum/index.php?topic=62346.1530>)

This reply from <https://www.metabunk.org/debunked-flat-earth-claims-about-lighthouse-ranges.t7254/> explains what is going on:

Flat earthers will quote the height and range of a lighthouse and then claim the light should be hundreds of feet below the horizon at that range if the world were spherical. So therefore the world is flat. But they are assuming the listed range of a lighthouse is the maximum range it can be seen from a ship at sea; it is not.

The range listed is the "nominal range" of the light, i.e. the range the light can be seen when the meteorological visibility is 10 nautical miles [18.5 km]. It is solely a function of the light's brightness. Why make a light brighter than it could ever possibly be seen at those distances on a spherical Earth? Fog. A very bright light will still be visible from several miles away in light fog. [Even that diminished light] was very important in the

days before electronic navigation methods became available.

The total absence of photos from flat earthers showing these lighthouses from these claimed distances supports the above explanation.

The Phoney Antarctica

On page 26, Jeremy tells us that “the UN uses a flag that actually depicts a flat earth!” Well, they do use the North Pole centered azimuthal equidistant projection map of the world that most flat-earth maps use, but it is simply an eye-catching mapping method, not a declaration that the UN believe in a flat earth. Jeremy annotates their map, quite unkindly labelling the distorted landmass of Australia - due to using this peculiar mapping system- as “A phony ‘Antarctica’”. Jeremy, I live in Australia, and I assure you, it is not Antarctica. Indeed, people in Ireland are much closer to the North Pole than we are to the South Pole, which explains why our summers are far hotter than those in Ireland.

To clarify this and the following topics, I am inserting three maps: Figure 5 is a historic Flat-Earth map which illustrates their concept of how the sun circles above the earth’s surface; Figure 6 is a modern version of this map on which I have overlain detailed information relevant to their usual solar illumination concept, and Figure 7 is a view of the earth as a globe, lit by a distant sun vertically above the same location.

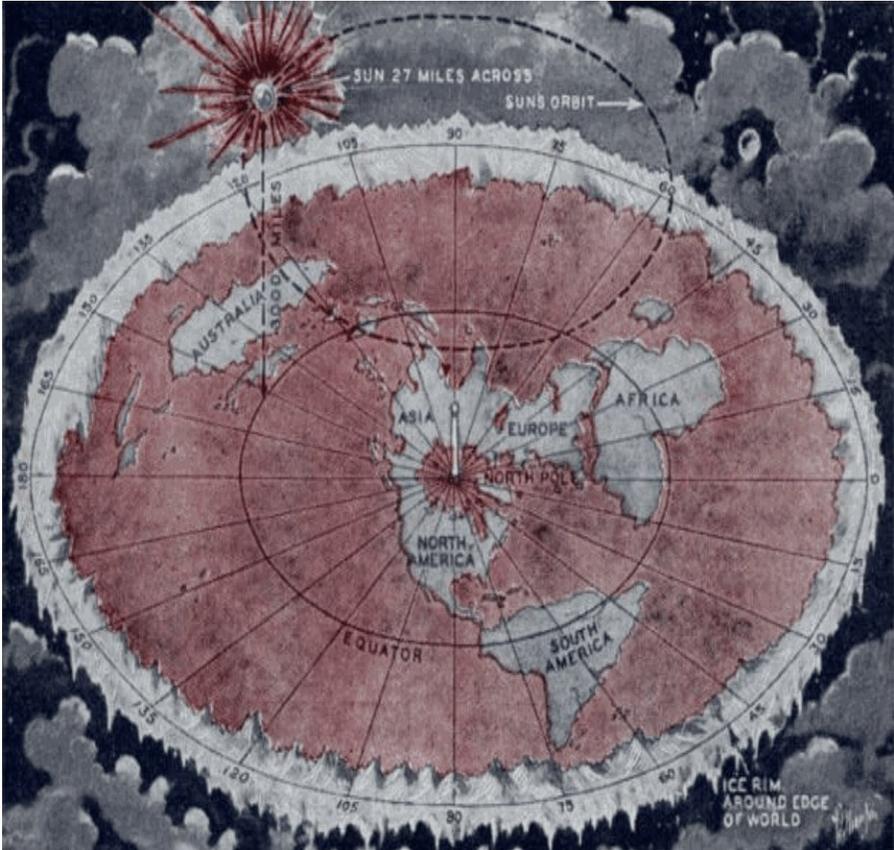


Figure 5: Flat Earth Map Including the Sun, by Wilbur Voliva (courtesy Flat Earth Society's website)

East-West Travel in the Southern Latitudes

Figures 5 and 6 also reveals another distortion used by flat-earthers who favour a North-Pole projection map. They claim that the South Pole is actually a South Circle smeared around the entire outside 'edge' of the earth, as Jeremy indicates with his red circle showing the apparent enormous extent of Antarctica, which is even clearer in Figure 6.

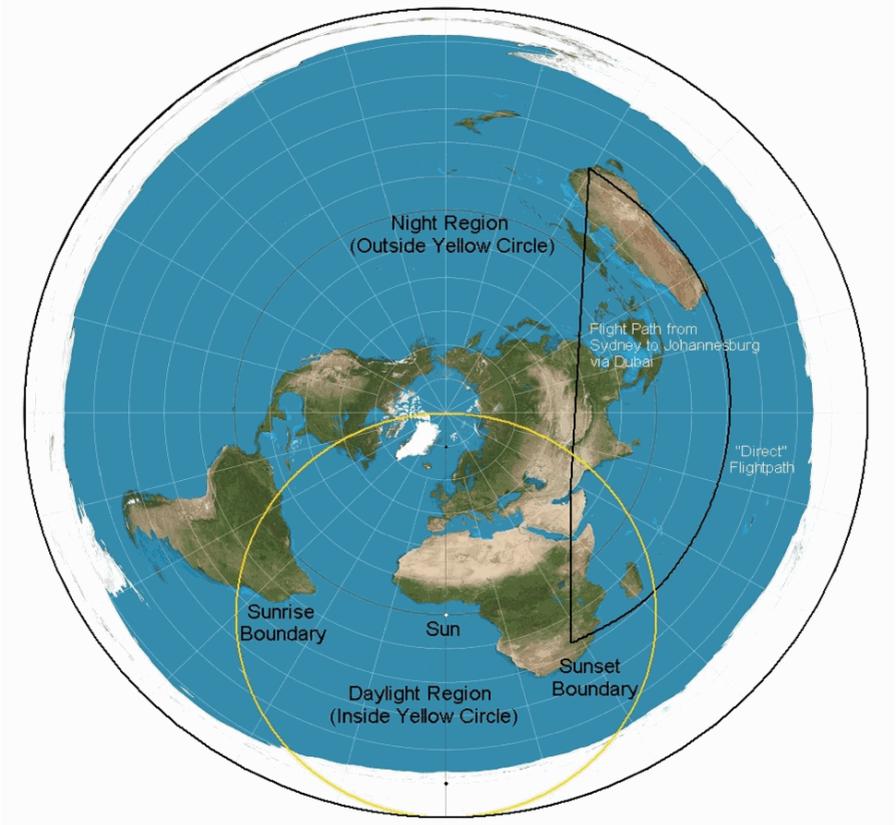


Figure 6: Flat Earth Map Showing the Daylight and Night Regions on the Equinox with the Sun above 0° Lat, 0° Long (Base Map courtesy Wiki Commons)

The travel claim is that the great width of the southern longitudes make it quicker to fly back towards the northern regions and then back down to another part of the southern regions than it is to fly directly between them.

Let's look at one claimed example (though Jeremy does not use this argument in his article): It is faster to fly from Sydney Australia to Johannesburg, South Africa via Dubai than to fly directly from Sydney to Johannesburg. Indeed, comparing the two flight paths on

Figure 6 does suggest this is so, with the ‘direct’ flight path being apparently 23% longer.

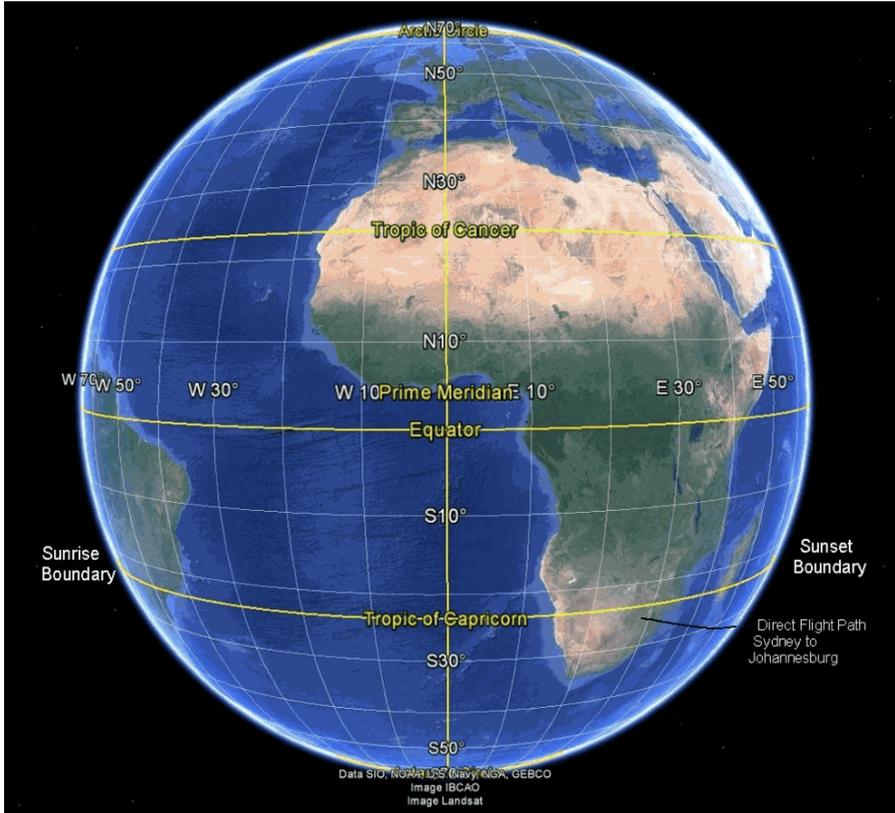


Figure 7: Spherical Earth with Sun above 0°,0° on Equinox. The Illuminated Half of Earth is Shown. (From Google Earth)

So let's look at some real flight times taken from Webjet: One can indeed fly Sydney (South Lat 34°)—Dubai (North Lat 25°)—Johannesburg (South Lat 26°) via Emirates with a total flight time of 22 hrs and 40 minutes. So the direct flight should take 27 hours and 50 minutes. However, a direct (non-stop) flight from Sydney to Johannesburg via Qantas only has a total flight time of 14 hrs and 20 minutes. Please note the result: the direct flight is 13hrs and 30 minutes quicker than the flat earth model predicts. And flying north

actually adds more than eight hours to the flight time, both of which are impossible on a flat earth. But these differences are entirely consistent with these flights being made on a globe. Part of the real direct flight path is indicated on Figure 7, and Dubai can be seen far to the North.

One further related example that contradicts the Flat Earth model are the Antarctica flights made by Qantas from Australia each southern hemisphere summer. Though the flights do not fly over the geographic South Pole as it would require many additional hours of flying over featureless snow fields, they do fly high enough and far enough into the Antarctic continent to prove beyond any doubt that Antarctica does not form the edge of a flat world. The flights fly over and around the magnetic South Pole, which according to Flat Earthers cannot exist. They also fly along the coast of Antarctica much farther than a flat earth model would permit in the time the flight takes.

Qantas's annual overnight New Year's Eve flight to Antarctica also demonstrates the continuous day occurring within the Antarctic circle. The jet initially flies into evening and dark night, then back into sunlight as it moves farther south, enjoying a brilliant sunlit midnight over Antarctica. As the aircraft heads back towards Australia later that 'night' it again flies back into darkness. The flat earth theory cannot explain how this can happen, as it claims the aircraft is flying much further from the sun as it heads south, so the darkness should only become more intense as the next section points out. I challenge all Flat-Earthers to take this commercial flight and look for the edge of the world that their incomplete nineteenth century maps show.

Sunrise and Sunset

The flat-earththers also have a major problem explaining sunrise and sunset when they use the North Pole centered disc earth, which is their usual (and best) model, as shown in Figure 5. They claim that

the sun is about 3000 miles (4830 km) above the surface of the earth and from 27 to 40 miles (43 to 65 km) in diameter¹⁵. Each day their sun revolves in a spiralling orbit above the stationary earth's surface (See *Zetetic Astronomy: Earth Not a Globe!*, by S. Rowbotham, 1865).¹⁶ The claim is that over six months the diameter of the solar orbit grows as it spirals from over the Tropic of Cancer to over the Tropic of Capricorn, the sun accelerating all this time to maintain the same 24 hour day length, and then spends six months decelerating while it spirals back to the Tropic of Cancer. This is the Flat Earth way of explaining our annual seasons. Let us ignore the simple facts that (1) their sun would be immediately drawn down into an impact with the earth, (2) there is no enormous mass 3000 miles (4830 km) above the North Pole for their sun to orbit around, (3) their sun has no credible fuel source and (4) there is no known force that is acting to accelerate and decelerate their sun as they require.

Such a sun could never set as it must always stay above the surface on a flat earth. They attempt to explain how we can have days and nights by claiming that as the sun moves away from us after noon each day, it slowly gets smaller and smaller and closer and closer to the horizon until it just appears to vanish.¹⁷ A cute story, but anyone who has closely watched a sunset (or sunrise) knows that the sun does not appear to get smaller as sunset approaches, but actually

¹⁵ Scott, in *Terra Firma*, pg 173, claims the sun is 3000 miles above us and 32 miles (52 km) in diameter. He includes his calculation of the sun's height, which assumes a completely flat earth as its baseline. The same crude calculation, used when assuming a spherical earth, yields an almost infinite distance to the sun.

¹⁶ Some flat-earthers prefer a square earth instead of a disc, to fit with "the four corners of the earth" (Isaiah 11:12). However, corners is translated from קַנָּפַי *kanaph*, which is more accurately translated as extremities and obviously means the four cardinal directions of east-west-north-south.

¹⁷ It is also difficult to see how they make this model fit King David's story of the sun going into a booth, as that would cause darkness throughout the entire flat earth at the same time, which is clearly not how sunset works. Even Flat-earthers accept that sunset slowly moves westward around the world.

remains the same size all day.¹⁸ What's more, we can actually see the normal sized sun slowly move behind the horizon at sunset, as shown in Figure 8, and then watch everything darken. The sun does not fade out of sight while still up in the sky, nor can their story explain the horizontal shadows we experience from the sun just before it sets.



Figure 8: Sun setting **behind** hills on the Baja Peninsula horizon as seen from the Gulf of California (Photo courtesy of Dan Heller)

Let's look at the maths behind the Flat Earth Sunsets: As Figure 5 shows, they claim the sun is 3,000 miles (4,830 km) above the earth, and they agree that the limit of the sun's visibility is the distance from the sun above the equator to the North Pole as occurs on the equinoxes (shown in Figure 6). Once the sun moves south of the equator, the North Pole remains without sunlight for six months. This makes their limit to seeing daylight from the sun along a flat surface a distance of 10,000 km (6,214 mi).

¹⁸ Never look at the sun without proper sun filtering eye protection. Normal sunglasses are not safe.

Using trigonometry, we find that their distance to the sun at sunset (or sunrise) is 11,104 km (6,900 mi), at an angle above the surface of 25.77 degrees. At an altitude of 25.77 degrees, the sun is still an hour and 43 minutes away from setting at the horizon on an equinox day and is therefore still very high in the sky. If it vanishes then, as the flat earthers require, we must quickly go from bright day to dark night and the sun will never appear to approach, let alone set behind the horizon. But we all know that the darkness of night does not happen until the sun really goes below the horizon.

This creates a further problem for flat-earthers: They acknowledge that the sun can be seen at the North Pole on the equinox, but the sun's actual, observed altitude that day is 0 degrees, which is to say that it is sitting right on the horizon. Even on the summer solstice, the sun at the North Pole only reaches an observed maximum altitude of 23.5 degrees, which means that by their own logic, the sun should never, ever be seen at the North Pole as it never reaches their required minimum altitude of 25.77 degrees.

Daylight and Twilight Lengths

Flat Earth models also predict that the increased width of the longitudes as one moves south of the equator results in increasingly colder weather due to shorter daylight periods and shorter twilights as the sun appears to move westward faster and faster. This broadening can be seen in Figures 5 and 6. In Figure 7, one can see that the longitudes are broadest at the equator, and narrow as one approaches the two Poles.

Figure 6 demonstrates how their model operates in more detail. Both Figures 6 and 7 have been arranged to show what happens on the two models when the sun is directly above the equator at 0° Latitude and 0° Longitude, as occurs on the equinoxes.

In this discussion, we will assume it is the Northern Hemisphere's Autumn Equinox, around September 23 each year. This is the time

when the sun begins to set at the North Pole, so it gives us a convenient way to measure the distance from the sun to its claimed “vanishing points” (calculated above as 10,000 km or 6,214 mi), which gives us sunrise as the sun moves towards us and sunset as it moves away from us. For the above model to work, this gives us a circle around the sun which is centered at 0° Lat, 0° Long and touches the North Pole, resulting in the yellow circle on Figure 6. In Figure 6, sunrise is happening at the left edge of the yellow circle and sunset at the right edge of the yellow circle. When one compares the area within the yellow circle with the entire area of the earth indicated by this map, it turns out that only 25% of the earth’s surface is ever illuminated by this FE sun at any moment. In contrast, the revolving globe model shown in Figure 7 has just slightly over 50% of the earth’s surface illuminated by the sun at any moment. In Figure 7, sunrise is happening at the left edge of the globe and sunset at the right edge of the globe.

The length of daylight for a location can be estimated in both models by following the latitude lines for that location from its sunrise to its sunset and seeing how many degrees of longitude it covers, with every 15 degrees of longitude equalling one hour of daylight. This data is compiled in Table 1. I could not see a simple way to calculate twilight durations using the flat earth model, so their claim of decreasing twilight durations moving south is merely compared to actual civil twilight durations.

It can be seen that both models begin well at the North Pole (if we ignore their other requirement to have a minimum sun altitude of 25.77 degrees), but as one moves southward, their predicted daylight periods become less and less accurate, until by the time we reach the South Pole, they are 23 hours and 45 minutes short of the actual daylight period.—No wonder they think the Southern Hemisphere should be so cold! In contrast, the globe model always remains within a few minutes of the actual daylight periods, with the differences due to the diameter of the sun and diffraction of light by the atmosphere and terrain, which were not compensated for in this simple model.

Latitude	Location	Flat Earth Sun-light	Globe Sun-light	Actual Sun-light	Civil Twi-light
90 N	North Pole	24	24	24	Nil
69.1 N	Cambridge Bay, Canada	11:20	12	12:08	1:57
51.5 N	London, UK	10:15	12	12:07	1:06
36.2 N	Gibraltar	9:35	12	12:05	0:51
0 N	Macapa, Brazil	8	12	12:06	0:41
38.6 S	Auckland, NZ	6	12	12:09	0:51
54.8 S	Ushuaia, Argentina	5	12	12:16	1:12
90 S	South Pole	0:15	24	24	Nil

Table 1: Comparison of Flat and Globe Earth Predictions of Hours of Daily Sunlight with Actual Measurements, plus actual Total Daily Civil Twilight in hours (On the Equinox).

Their claim that twilight becomes shorter as one gets further from the North Pole seems to work until one passes the equator, but then the twilight periods begin to lengthen again. They attempt to prove their claim in several of their books by showing that twilight duration in Auckland (36.8° South) is shorter than that in London (51.5° North), though they carefully avoid quoting these latitudes. In contrast, the globe model predicts that two cities with similar latitudes, but north and south of the equator, such as Auckland and Gibraltar, should have similar twilight durations. Table 1 confirms that they have the same twilight duration, disproving yet another aspect of the flat earth concept.

Twilights are shortest near the equator, a fact which their ‘orbiting sun’ concept cannot explain, but which is well explained by a rotating earth orbiting the sun, as the local rotational speed and longitude width is highest at the equator.

Why Can We See Stars?

The Flat Earth (FE) model also has problems with the angular diameter of the sun (which is its apparent diameter when we look at it) and with the fact that we can see Venus and the stars at night. First, let us examine the angular diameter of the sun in both models, summarised in Table 2. As in Table 1, all of the earth data is for the day of the equinox. For the flat earth sun calculations, each location is calculated for the local noon sun to maximise their sun diameter. The table indicates how (using a sun diameter of 28 miles) the FE sun's maximum angular diameter is 32.1 arcminutes (32 minutes of arc is just over $\frac{1}{2}$ of a degree of arc) at the equator and decreases to 14 arcminutes at the two poles. This makes the sun only 43% of its maximum angular diameter at the poles (and thus also 14 arcminutes at all of its proposed sunrise and sunset locations). There is one immediate problem with this: The observed angular diameter of the sun remains unchanged at 32.1 arcminutes for all locations on the earth, consistent with the heliocentric model which has a very distant sun. This can be confirmed by anyone with a camera with a telephoto lens and sun filter. Like all of the arguments I am presenting in this paper, they are based on objective, observational, measurable science. They are totally unlike the unobservable conjectures and assumptions used to 'prove' atom to Adam evolution and billions of years.

The second FE problem is much worse. Even if we pretend their disproven shrinking of the sun's angular diameter was true, the sun would still have an angular diameter of 14 arcminutes at the point which the flat earth model claims it becomes so small that it becomes invisible and therefore appears to set (or rise). Table 1 already showed that this somewhat diminished sun still has an altitude of 25.77 degrees. So we have a sun which still has quite a large diameter, is still quite high in the sky and is still far brighter than a full moon just disappearing from sight, even on cloudless days. Is it

reasonable to accept that this could happen? Have you ever seen it happen?

Let us look at two other lights that we can see in the sky and see how they compare to the above conditions. One is the “daystar” Venus, which is often one of the first ‘stars’ seen after sunset, and therefore is one of the brightest objects apart from the sun and moon. It can be easily seen in the sky at altitudes far below 25 degrees. Table 2 shows that Venus has a maximum angular diameter of only 1.05 arcminutes. The diameter of the sun at it’s supposed vanishing point is thirty times the diameter of Venus. How can it be possible to see the tiny Venus if we can’t see the immensely larger and brighter sun?. Let’s compare our sun to another star: Alpha Centauri, our closest neighbouring star and the third brightest star in our night sky (at least in the Southern Hemisphere). It has an angular diameter of only 0.00012 arcminutes. The FE ‘disappearing’ sun has a diameter 119,600 times that of Alpha Centauri. Yet we can easily see Alpha Centauri on clear nights in Australia. And we can see hundreds of other even smaller and less bright stars close to the horizon on a moonless night. If the vanishing point of the sun argument of the flat earth model is true, not a single one of the planets or stars should ever be visible.

Note that the bottom three rows of Table 2, marked by stars (*) do not use Flat Earth Model calculations and the angular diameters in the last two lines relate to Venus and Alpha Centauri as seen from earth. The distance to Venus varies as its orbit approaches Earth and then moves to the opposite side of the Sun as their orbital years are different lengths. Venus’s apparent diameter varies consistently with these distances.

Latitude	Location	Distance to FE Sun (Miles)	FE Angular Diameter of Sun (Arc-Minutes)	Heliocentric Angular Diameter of Sun (ArcMin)	Observed Angular Diameter of Sun ArcMin
90 N	North Pole	6,900	14	32.1	32.1
69.1 N	Cambridge Bay, Canada	5,636	17.1	32.1	32.1
51.5 N	London, UK	4,652	20.7	32.1	32.1
36.2 N	Gibraltar	3,904	24.7	32.1	32.1
0 N	Macapa, Brazil	3,000	32.1	32.1	32.1
38.6 S	Auckland, NZ	4,013	24	32.1	32.1
54.8 S	Ushuaia, Argentina	4,829	19.9	32.1	32.1
90 S	South Pole (0° Long.)	6,900	14	32.1	32.1
90 S	South Pole (180° Long.)	18,882	5.1	32.1	32.1
0 to 90	Heliocentric Earth Distance from Sun	149.6 million km*	--	32.1*	32.1
--	Venus (as seen from Earth)	38 to 261 million km*	--	--	1.05 to 0.16*
--	Alpha Centauri (as seen from Earth)	40 trillion km*	--	--	0.00012*

Table 2: Calculated and Observed Angular Diameter of Sun at Zero degrees Latitude, nearest Longitude and Other Celestial Objects.

One further impossibility of their 45 km (28 mile) diameter sun is this: Our real sun, with a 296,000 km (184,000 mile) diameter, has a massive gravitational field which is almost 28 times as strong as our earth's. This strong field is required to prevent the nuclear reactions (hydrogen fusing into helium) in the sun's core from tearing the sun apart. This fusion releases the enormous amount of energy which

flows from our sun and, as King David said in Psalm 19, heats our world. FE's miniature sun would (1) never 'ignite' and (2) if it ever did, it would blow itself apart. And the powerful gravitational field of the sun also keeps earth in orbit around it and causes about a third of our tides. King tides occur when the sun and moon align at the New Moon.

Perhaps you now understand why the Flat Earth books that endorse this model—and as far as I know it is their best model¹⁹—avoid showing you the calculations that are in Tables 1 and 2.²⁰ Their model only 'works' if you close your eyes and accept their claims instead of digging in and comparing the details of their model to our real world.

Blind acceptance is *not* how Jehovah God tells us to grow in faith. That is the route to deception. That is how the fake 'Christian' denominations lead their followers away from Bible Truth. We are exhorted to examine all things and compare them with the Word of God (Acts 17:10-12, 1 Peter 3:13-17).

Joshua's Long Day also sheds some light on the rotating earth concept. Here is the passage:

Then Jehoshua (Joshua) spoke to Jehovah in the day when Jehovah delivered up the Amorites before the children of Israel, and he said in the sight of Israel: "Sun, stand still over Gibeon; and Moon, in the Valley of Aijalon." So the sun stood still, and the moon stayed,

¹⁹ If anyone knows of a better Flat Earth model, please send it to me so I can examine it and update or withdraw this article. In Part 2 we examine the best stationary spherical and heliocentric models.

²⁰ And yet the authors must have done these calculations, as that is how they worked out the height and diameter of their sun used in their models. But they cannot show you all these results as they reveal the absurdity of their model. I selected a 28 mile diameter sun as it gives the correct maximum angular diameter of the sun and the smallest minimum angular diameter to give their 'vanishing point' its best chance.

until the people had revenge upon their enemies. Is this not written in the Book of Jasher? So the sun stood still in the midst of heaven, and did not hasten to go down for about a whole day. Jeshoshua 10:12 & 13

There are two things happening here: The sun is standing still (from the Hebrew *damam*), and the moon is staying (from the Hebrew *amad*). This is consistent with the earth's rotation miraculously stopping, which would 'freeze' the sun into its position as seen by Jehoshua. But the moon, though it would stay visible in the sky, would very slowly advance as it continued in its orbit around the earth. The moon would only move about 12 degrees during that day, thus still staying above the Valley of Aijalon. To restate this, this Bible passage reveals to us that the moon orbits the earth, and that the earth normally rotates to make the sun appear to move in the sky. I do not see how the FE model could explain these things happening.

Earth's Orbit around the Sun

What evidence do we have that the earth orbits around the sun? There are several convincing items to examine.

Our Seasons

The first and most important one would be our annual seasons. They are due to our earth's rotational axis being at a 23.5 degree angle to the plane of our orbit around the sun. At the September equinox, the tilt is such that both the north and south poles are the same distance from the sun and at the same angle to it. On that day, both poles have the sun directly on their horizon and thus have 24 hour days. The rest of the world has 12 hour days. Three months later, the tilt is pointing away from the sun on the North Pole, which gets no sunlight, while the South Pole is still having 24 hour days, while the entire southern hemisphere is enjoying summer. Another three months and we are back to the equinox again, and three months later the North Pole is now having its 24 hour days while the South Pole

has no daylight. And the Northern hemisphere is now enjoying its summer. As we saw earlier, FE models cannot explain many features of our seasons.

Yearly Progression of the Stars

The next item is annual progression of the stars at night. As an example, constellations and stars that we see rising at 10 PM slowly move westward by four minutes every night. So in 15 days, those stars would be rising at 9 PM and in 30 days, they would rise at 8 PM. So by 10 PM on the last night, those stars that were rising at 10 PM a month earlier would already be high in the sky. That continues each night, and in one year from when you started, they would again be rising at 10 PM. This is because each night we have orbited a bit farther around our sun, so we are seeing a bit different section of the night sky each night. The Flat Earth model cannot explain how this happens in any reasonable manner, and the geocentric model also has serious problems.

Retrograde Motion of the Superior Planets

can be seen when the Earth, with a faster orbit because it is nearer the sun, passes one of the slower moving planets like Mars and Jupiter. For a while they will appear to move backwards when viewed against the much more distant stars. This happened in April, 2018 with Mars. Most good astronomy websites will tell you when these events are happening. You will need to carefully observe the stars around Mars and then watch Mars appear to move eastwards compared with them. This happens because of earth's quicker orbit speed. The FE model cannot explain this motion.

Stellar Parallax

A similar effect causes which is created by the relative motion between the Earth and a star. It arises from the orbit of the Earth around the Sun: the star only appears to move relative to more distant

objects in the sky. However, the parallax is tiny due to the great distances to the stars, so high-powered telescopes and cameras are required. The Hubble Space Telescope, by using spatial scanning, can now precisely measure distances up to 10,000 light-years away (Wikipedia). This stellar parallax shows that the stars are light-years distant and are not all at the same distance from the earth as earlier models claimed.

Sun Worship

Jeremy claims on page 32 that believing in a heliocentric solar system means that we must become sun worshippers. I believe in a heliocentric solar system, but I do not, and will never, worship the sun. It is merely a physical object that Jehovah God has created to provide heat and light to the earth and also gives the earth a large mass to revolve around which allows us to have seasons. Does Jeremy suggest that having an earth centered system makes him an earth worshipper? No, he does not, nor do I accuse him of such. But one claim is as unfounded as the other. And as I am sure Jeremy will concede, there are sadly those who do not know God and who do worship the sun and/or the earth instead of their Creator.

Our Mission as Christians

Like Jeremy, I too believe in a recent creation of our physical universe, including the earth and all the kinds of life living on it in just six days. I believe that Jehovah God gave us His Instructions in the Bible, and when Adam and Eve disobeyed Him (ie sinned), He sent death into the world. Later He sent a world-wide Flood to cleanse the Earth. Then Jehovah sent His own Son Jesus (Jeshua) to pay the penalty for our sins, so that we can be cleansed and have His sacred Spirit live within us. Then we can learn to live righteously, which involves obeying God's Laws, and become God's children for eternity. These things are all clearly taught by both Jehovah God and our Messiah Jeshua in the Bible (Genesis 1:1 to 2:24, Gen 6:1-9:19, Exo 20:1-11, John 1:1-4, Mark 10:5-9, Luke 11:47-51, etc). There

are many things in this universe that support these views and discredit the commonly taught billions of years and spontaneous evolution of life.

I cannot find a single verse where Jehovah or Jeshua teach us that we must believe in a flat earth with the North-Pole at its center. And there is ample physical evidence to discredit such a belief, as this brief article has demonstrated. There are a few verses where some of God's servants say how the cosmos appears to work based on simple observations.²¹ Yes, Jehovah could have explained to them how it actually works. But instead, Jehovah let them express what they saw, and has left us the challenge of working out how the physical cosmos works. Likewise, He could have taught us the fundamentals of quantum physics, DNA, epigenetics and our immune system in the Bible, but He also chose to not do that. Figuring out these things has provided hundreds of years of exciting and rewarding research for thousands of scientists, and there is still a lot to learn.

I urge anyone who has accepted flat-earth theories to go back and carefully re-examine the scriptures that you have been told require you to believe in a flat earth. See if any of them are direct statements from Jehovah or Jeshua that actually tell you our earth is flat. Re-examine the models you have seen, and see if they really fit the world we live in or are merely fantasies. Pray for guidance in all of this.

There is plenty of work to be done in supporting Biblical young earth creationism, demonstrating the absurdity of atoms to Adam evolution and teaching everyone their need for salvation, and how Jehovah God will graciously give them everlasting life through His Son Jeshua the Messiah (Jesus Christ). Please do not destroy your

²¹ We also have a few verses where Jehovah and Jesus describe the sun rising and setting (eg Isaiah 45:6 and Mat 5:45), but they too are merely describing what we see when the sun comes above the earth's horizon and later descends below it. They are not specifying that the earth does not rotate. Even today, we all refer to these events as sunrise and sunset.

credibility by trying to defend the demonstrably false flat earth heresy and thus undermine your presentation of the real and necessary parts of your faith when you are witnessing to others.

I find it quite concerning that these flat-earth models convert Jehovah's incredible and enormous universe into what is by comparison a child's snow dome toy that all fits into a hemisphere a few thousand miles across. Our God and His Son are so amazing that They have created a universe so vast that we cannot even see its outer limits using massive telescopes located in space.

Amazingly, They made all of these uncountable galaxies and filled our planet with wonderfully diverse kinds of life in only six days. And each living kind requires many millions of unique bytes of perfectly 'written' DNA code to function. There is no conceivable natural process that is able to design these complex life systems and generate this perfect code which allows them to thrive. Mutations can only disrupt and mutilate this genetic code. Natural selection creates nothing new, all it can do is kill off the creatures with the worst mutations. Understand this clearly: Mutations are destructive, not creative.

Our earth is not the insignificant speck that evolutionists claim. Jehovah God devoted five of the six days He spent creating the Universe to forming and populating our Earth. It is the only planet in the entire universe which is known to have life on it. Our earth has exactly the right mineral composition, exactly the right atmosphere, exactly the right amount of water and is exactly the right distance from the exactly right sun for life to flourish on it. It rotates at exactly the right speed to maximise the arable land on it. Earth's axis is at exactly the right angle to its orbit to give us our annual seasons, which also expands the area that we can live on. On top of all this, it is located in the perfect spot for us to actually see and rejoice in the vastness of our God's Universe. And it looks like God has placed us in the center of this magnificent universe so we can enjoy all of it.

Please, learn to revel in the greatness and majesty of Jehovah with us. We have a truly awesome and loving Father.

PART 2: IS OUR SPHERICAL EARTH STATIONARY OR IN MOTION?

Introduction

As noted in the overall introduction, this part is largely based on J. A. Moorman's *The Biblical and Observational Case for Geocentricity (A Place rather than a Path for the Earth)*, which accepts that the earth is spherical and the universe is immense. So this view does away with many of the absurdities of the Flat Earth models examined in Part 1. However, it still claims that the earth is fixed in space and the universe, including our sun, revolves around it, much like the system proposed by Tyco Brahe in the 1590s. We will first look at whether Scripture requires us to have either a stationary or a moving earth, then look at summaries of the Geocentric and Heliocentric models and lastly examine some of the scientific strengths and problems with the Geocentricity and Heliocentric models.

Scripture and Geocentricity and Heliocentric Models

We will begin this section by looking at the Biblical claims of Gerardus D. Bouw, who appears to be the source for a considerable part of Moorman's book.

Bouw's Scriptures

In the *Geocentricity Primer*, Bouw writes “*When it comes to this present world, there are only two references in the entire Bible describing its motion.*” We will look closely at these two references.

Bouw first quotes Psalm 93:1, from the King James Version (KJV), also called the Authorised Version (AV), as it was authorised by the British Parliament for use in the Church of England. King James instructed the translators to produce a Bible that conformed with the needs of the British church and government and published it in 1611. This was at the height of the dispute between the geocentric and heliocentric models of the universe, and the result indicates that the translators were geocentrists. It was updated, extensively edited and reissued in 1769, creating the KJV still in use today.

Psalm 93:1 (KJV, Strong's numbers embedded—from the Online Bible <https://onlinebible.net/>):

The LORD <03068> reigneth <04427> (8804), he is clothed <03847> (8804) with majesty <01348>; the LORD <03068> is clothed <03847> (8804) with strength <05797>, wherewith he hath girded <0247> (8694) himself: the world <08398> also is stablished <03559> (8735), that it cannot be moved <04131> (8735).

This appears convincing, but it does not match well with a modern, more literal translation, such as (https://hcpublications.net/Holy_Bible_CHCP.pdf):

Jehovah reigns, He is clothed with majesty; Jehovah is clothed, He has girded Himself with strength. Surely the world is established, so that it cannot waver.

But which one is a better rendition of the original Hebrew God gave us? Let us examine some of the Hebrew words and see what they mean and how they are usually used in the KJV.²²

First we will look at **stablish**: 03559, (also from the Online Bible): כּוּן *kuwn* koon; a primitive root; properly, to be erect (i.e. stand perpendicular); hence (causatively) to set up, in a great variety of applications, whether literal (establish, fix, prepare, apply), or figurative (appoint, render sure, proper or prosperous):—AV translations:—prepare 85, establish 58, ready 17, stablish 5, provide 5, right 5, fixed 4, set 4, direct 3, order 3, fashion 3, variant 2, certain 2, confirmed 2, firm 2, preparation 2, misc 17; 219. So we see that even the KJV most commonly translates *kuwn* as prepare and establish, with no requirement for the thing prepared to be locked in one place.

Now let's look at **cannot be moved**, from 04131: מוּט *mowt* mote; a primitive root; to waver; by implication, to slip, shake, fall:—be carried, cast, be out of course, be fallen in decay. Though the KJV translates this as moved 20 of the 39 times it is in the Bible, this is clearly not the normal meaning of *mowt*. Waver, totter, and shake are all better translations. As there is also a negative in this verse, it becomes not waver.

So the Hebrew is NOT saying that the earth **must be** motionless in space, but rather that it cannot be made to waver or totter. Which means this verse can be applied equally to either a stationary earth or an earth that is travelling smoothly through space on the trajectory God created for it. It does not prove that the earth is stationary as Bouw claims.

²² The LORD in the KJV is a deliberate mistranslation of the Tetragrammaton, which is shown here fully vocalised as it appears fifty times in the thousand-year old Leningrad Codex: יהוה־יהוה *Jehovah*, God's Name, which is used seven thousand times in the original manuscripts, is replaced almost every time with a mere title: Lord. See [What is God's Name?](#) on our website for more information.

1Corinthians 8:13 is the second Scripture that Bouw says proves the earth does not move (KJV, Strong's numbers embedded):

Wherefore <1355>, if <1487> meat <1033> make <4624> <0> my <3450> brother <80> to offend <4624> (5719), I will eat <5315> (5632) no <3364> flesh <2907> while the world standeth <1519> <165>, lest <3363> I make <4624> <0> my <3450> brother <80> to offend <4624> (5661).

Compare this with Young's Literal Translation:

wherefore, if victuals cause my brother to stumble, I may eat no flesh—to the age—that my brother I may not cause to stumble.

In this verse, Bouw hangs his case on 'the world standeth', translated from the Greek words 1519 and 165, which mean:

1519. εἰς eis ice; a primary preposition; to or into (indicating the point reached or entered), of place, time, or (figuratively) purpose (result, etc.); also in adverbial phrases:—[abundant-]ly, against, among, as, at, [back-]ward, before, by, concerning, + continual, + far more exceeding, for [intent, purpose], fore, + forth, in (among, at, unto, so much that, to), to the intent that, + of one mind, + never, of, (up-)on, + perish, + set at one again, (so) that, therefore (-unto), throughout, til, to (be, the end, ward), (here-) until (-to), ... ward, [where-]fore, with.

165. αἰών aion ahee-ohn'; from the same as 104; properly, an age; by extension, perpetuity (also past); by implication, the world; specially (Jewish) a Messianic period (present or future):—age, course, eternal, (for)

ever(-more), [n-]ever, (beginning of the, while the) world (began, without end).

So it can be seen why only the Geneva and KJV (AV) translate this as ‘while the world standeth’. This is because ‘world’ is at best merely *implied* in the sense of something that continues through time, and this Greek phrase is really about time and literally means “into the Ages”, ie- forever. *Aion* is where our English word eon comes from. Even the KJV usually translates *aion* that way, only mentioning the world (incorrectly) 38 out of the 128 times *aion* is used. The Greek words for world are 3625 οἰκουμένη *oikoumene* oy-kou-men’-ay, essentially referring to the known inhabited earth and 2889 κόσμος *kosmos* kos’-mos, referring to the entire earth, and at times to the entire universe. The Greek of 1 Cor 8:13 does not, in any way, say that the world is standing still as Bouw claims. The Aramaic Peshitta at 1 Cor 8:13 also means forever and makes no reference to the earth.

These examinations show that Bouw’s first scripture does not distinguish between the two models, and his second proof scripture is a mistranslation copied from the Geneva Bible by the geocentric KJV translators, and actually has absolutely nothing to do with this issue.

As Bouw says these are the only two scriptures that indicate whether the earth is in motion or not, the conclusion must be that there is nothing in the Bible that requires us to believe that the Earth is stationary.

And why does Bouw insist on using the KJV? Because Bouw also claims that “Psalms 12:6-7, in all Reformation translations as well as the old Hebrew lexicons, indicates that the word of God will be inerrantly translated and preserved into every language.” (Pg 9). He then claims that the KJV is an inerrant translation. But Psalm 12 says nothing about translations, it simply says that God will ensure that His words will be preserved throughout all generations. These words of God are preserved in their original languages (Hebrew and

Aramaic²³), and all nations translate from them; mostly correctly, but sometimes not, as we have just seen in these KJV passages. But the translators are all held responsible for what they do (Rev 22:18-19).

And here is one self-proclaimed ‘infallible’ authority which both Bouw and Moorman have neglected to quote in support of their model of a geocentric, stationary earth:

“In the name and by the authority of Jesus Christ, the plenitude of which resides in His Vicar, the Pope, we declare that the teaching that the earth is not the centre of the world, and that it moves with a diurnal motion, is absurd, philosophically false, and erroneous in faith.”—Decree of Pope Urban VIII. (signed) by Cardinals Felia, Guido, Desiderio, Antonio, Belligero, and Fabricius. 1633²⁴

Now, let us look at Moorman’s principle Bible verses which he claims proves the idea of a stationary earth:

Moorman’s Scriptures

Job 26:7—*He stretches out Zaphon²⁵ over emptiness; he hangs the earth on nothing.* Yes, our earth hangs on nothing! However, this description fits both the stationary and dynamic earth models equally, and both models also have a link between the earth and sun, with one revolving around the other. So this is **not** a conclusive scripture supporting a stationary spherical earth. But as we will see later, when you understand the geocentricity model better, this verse is actually fatal to their model, as it reveals that æther does NOT exist.

²³ There is extensive evidence that the Greek New Covenant is a translation from the Aramaic Peshitta, and is thus not the original Words of God.

²⁴ Quoted from Charles Chiniquy’s book *Fifty Years in the Church of Rome*.

²⁵ Possibly “The North”.

Genesis 28:11-13—The Ladder to Heaven. This ladder is identified as a dream, not a reality. But even if it was real, why would God not be able to design a ladder that can compensate for the earth's motion if that was required? And such a ladder would indeed be much like the 'space elevator' that Moorman spends several pages discussing.

Joshua 10:12-14—This event has been dealt with already in Part 1, pg 39. Joshua explains what they saw from their frame of reference on the earth.

Judges 5:20—*They fought from the heavens; the stars from their highway fought against Sisera.* Is this creative poetry, or did meteorites come down against Sisera's army, looking like they were descending a roadway? But Moorman is interested in the KJV rendition of *stars in their courses*, claiming that it shows that the stars must revolve around the earth, rather than the earth rotating. But *courses* is a mistranslation. The Hebrew here is 04546 מַסְלָה *mecillah* mes-il-law' and means highway, not courses. And again, from where Deborah was standing on the earth, and if she actually meant the stars, she would not have been able to tell if the earth was revolving or the stars were. So this verse also does not distinguish between the two models.

Judges 5:31—The Sun comes out in full strength, like when it appears from behind a thick moving cloud. There is no need for the sun to be moving. Or even appearing to move in this case. So it is not useful in determining if the earth is stationary or not.

2 Kings 20:9-11—Hezekiah sees the shadow go back ten degrees. This passage does not say if this is done by reversing the spin of the earth or moving the sun backwards. Isa 38:8 tells us what Jehovah actually said and what Isaiah's interpretation of what happened is:

“Behold, I will bring the shadow on the sundial, which has gone down with the sun on the sundial of Ahaz, ten

degrees backward.” So the sun returned ten degrees on the dial by which it had gone down.

We see that Jehovah only said that the shadow would move, and Isaiah then reports that they saw the sun move backwards, but his report is simply what he sees from his frame of reference standing on the earth. -Reversing either the orbit of the sun or the rotation of the earth would appear the same to Hezekiah and Isaiah. They would not be able to distinguish which reversal actually happened.

1 Samuel 2:8—“*For the pillars of the earth are Jehovah’s, and He has set the world upon them.*” The pillars of the earth are explained well by the hydroplate theory, in Brown’s book *In the Beginning*. They were the supports beneath the crust that were surrounded by the waters beneath the crust (the crust is the firmament or expanse of Gen 1:6 to 8, as explained in the Hydroplate Theory <https://www.creationscience.com/onlinebook/>). The pillars were mostly destroyed during the Great Flood, releasing the subterranean waters as the Fountains of the Deep, so now much of the crust rests directly on the mantle. With a spherical earth, both models needed these same supports, so they cannot be used to ‘prove’ scripture teaches a stationary earth.

And the Earth’s foundations were immediately beneath these pillars:

Psalm 102:25—First You laid the foundation of the earth, and the heavens are the work of Your hands.

This foundation, mentioned above, is the core of the earth running out to where the mantle contacts the earth’s crust. The Hydroplate theory claims that our crust was created on Day Two, so it was built over the foundations of the earth that were created on Day One. As both the stationary and mobile spherical earth models agree that the earth consists of a core and mantle with the crust overlaying it, they must share the same foundation. So again, the 21 scriptures that Moorman quotes that mention the foundations of the earth do

nothing to distinguish between the two models and do not require the earth to be stationary.

1 Chronicles 16:30—This passage really says that the earth has been established, and shall not waver, using the same Hebrew text as Psalm 93:1, already dealt with in detail. This verse does not require the world to be stationary, for it can also continue smoothly on the path that Jehovah made for it.

Job 9:6-8—The Hebrew here is 04725 מקום *maqowm* maw-kome', which does often mean place. However, it can also mean a region, a direction or a distance. Our world, even if it is moving, does indeed fulfil all four of these attributes of *maqowm*, as it moves with direction and distance within its allocated region or place. Again, Moorman chooses to interpret this passage in its narrowest way in an attempt to force the Bible to say that the earth is stationary.

Psalm 19:1-6—This time we will use the KJ version that Moorman likes:

The heavens declare the glory of God; and the firmament sheweth his handywork.

2 Day unto day uttereth speech, and night unto night sheweth knowledge.

3 There is no speech nor language, where their voice is not heard.

4 Their line is gone out through all the earth, and their words to the end of the world. In them hath he set a tabernacle for the sun,

5 Which is as a bridegroom coming out of his chamber, and rejoiceth as a strong man to run a race.

6 His going forth is from the end of the heaven, and his circuit unto the ends of it: and there is nothing hid from the heat thereof.

Moorman first emphasises the use of firmament in verse 1. This is to support the idea that the universe is embedded in a solid æther. Firmament is translated from “07549. רָקִיעַ *raqiya* ‘raw-kee’-ah; properly, an expanse, i.e. the firmament or (apparently) visible arch of the sky:—firmament.” (-from the Online Bible). So we see that *raqiya* is actually an expanse, which may be solid, or may simply be an empty space between objects. *Raqa*, the root word that *raqiya* is derived from means to pound, beat or stretch. Jehovah tells us several times that he has stretched out the expanse (or firmament in the KJV) of the heavens, so clearly stretching is the main focus of *raqiya*. Firmament implies a solidity which the Hebrew does not require.

Verses 4 to 6 are fascinating. Moorman attempts to use them to prove that the sun is revolving around the earth. Indeed, it says that the sun rises, moves across the sky and sets. But that is not an accurate description of the sun revolving the earth. An orbiting sun neither rises nor sets, it merely keeps revolving. It can only appear to rise and set from the perspective of someone standing on the earth’s surface. And at every moment of every day, there are places on the earth where the sun appears to be rising, places where it appears to be passing its highest point for the day (noon), and places where it appears to be setting.

Nor can a revolving sun go into a tabernacle or chamber at night to give us darkness, for we know that the opposite position on the earth to ours has daytime when we have night. This description only works from the perspective of someone standing at one place on the earth’s surface who was not sure what happened to the sun when they couldn’t see it. The only possible conclusion here is that King David, who wrote this Psalm, wrote it according to what he could see (the sun appearing to rise, move across the sky and then set) and what he imagined might happen at night (the sun went into a chamber so its light was restrained). Psalm 19 does not objectively show us whether the sun is revolving around the world or whether the earth is rotating on its axis as both would give us an apparent

sunset, night, sunrise and noon. It is lovely poetry written by a devoted servant of God, but it is not a comprehensive description written directly by God about how the sun and earth interact, as noted in Part 1 (pages 2 to 4). And as explained earlier, King David's poetic description does not work at all for the flat earth models, as their sun never goes below the horizon, so they can't have sunset, night or sunrise.

Psalm 33:6-9—In this passage, Moorman claims that the end of verse 9, which says in the KJV, "*He commanded, and it stood fast*", means that the earth must be stationary. Now if the Scripture actually said "Jehovah commanded the earth to stand fast." Moorman would have a case for his claim. But what the verse actually says is that **everything** that Jehovah has commanded abides, which is true. If it was really saying *everything stands fast*, the sun would remain above one place on earth. That side of earth would boil, the other side would freeze solid. Everything would die.

Moorman reiterates every scripture that repeats these words, but none of them add any more support to the idea that the earth must be frozen in space. In the end, he, like Bouw, does not have **even one** scripture which require us to believe that the earth is stationary. Building a model of the universe based on mistranslations in a four hundred year old Bible is not a wise thing to do.

The Basics of Geocentricity and Heliocentric Models

Moorman presents the stationary geocentric model as the only one that is consistent with the Bible, and thus must be correct. However, as we have seen, the scriptures that he and the other Geocentrists use to support their position have been poorly translated, misunderstood or do not exclusively support geocentricity. Nor are there clear Scriptures that require us to accept a heliocentric model. So now, we can look objectively at both of these models and see if one or the other fits better with the universe that we live in, which is the

universe that Jehovah God has created. First, we will look at a summary of the model Moorman presents, with additional details from other geocentrists.

The Geocentricity Model

As noted above, the current geocentrists accept a spherical earth, and the typical modern distances to the sun, the other planets and to the most distant galaxies we can see. They also accept the modern sizes, densities and thus mass of the sun, planets and moons. But they deny that the earth can move, insisting that the sun revolves around the earth exactly once each day.²⁶ However, the rest of the universe does not revolve around the earth exactly once each day, so the positions of the stars and galaxies slowly move about 1 degree westward each day, if viewed at the same time. Which means that each night, each star will rise about 3.9 minutes earlier, and in a year's time, they are back to their original positions.

The planets of our solar system are treated as special cases, which with the exception of Earth, all revolve around our sun, as shown in Figure 9. But as the sun revolves around the earth, in addition to their relatively slow planetary revolution around the sun, they must also follow the sun in its daily race around the earth.

This arrangement will allow many of the observations of the planetary positions, including the phases and linked changes in the apparent diameter of Venus to be explained.

²⁶ Although there are a few Geocentrists who accept that the world rotates, but deny that it orbits around the sun. This idea is analysed later in the article.

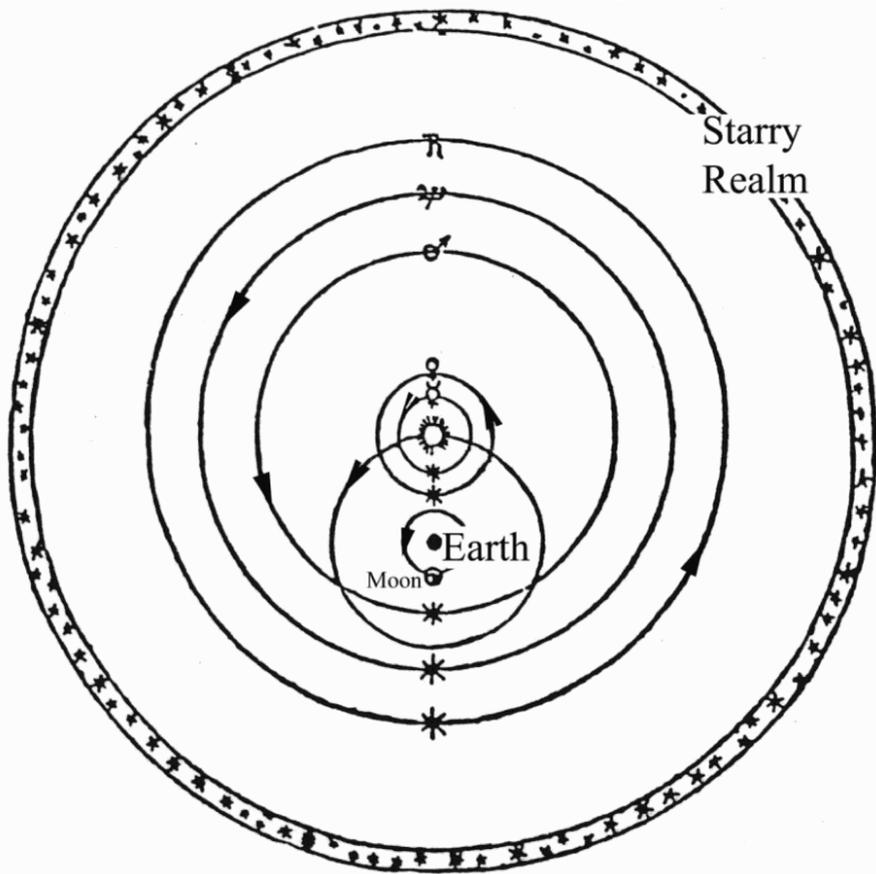


Figure 9: The Modified Tyconic Model (From *The Geocentricity Primer*). It shows all of the planets orbiting the Sun except the Earth. The Sun, complete with the other planets and stars, orbits around Earth each day.

The annual seasons on earth are claimed to be due to the sun slowly oscillating up and down in its orbit around the earth, as explained by Bouw under Figure 10. In this model, the earth's axis is directly North/South, as their explanation will not work with it tilted as in the heliocentric model.

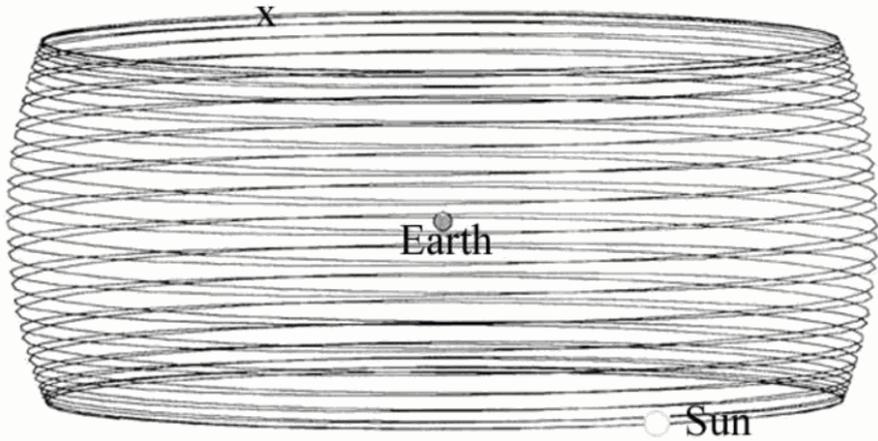


Figure 10: *Geocentric explanation of the seasons*

(From the Geocentricity Primer, pg 134)

The sun traces out the indicated path in the course of the year. Each adjacent layer in the helix represents one day. The sun's position is at its lowest point, on the first day of winter. The sun spirals upward, one rotation per day, until it reaches its northernmost point, marked by the X. It then starts a down-ward spiral, again crossing the equator and back to its southernmost point where it started from.

Moorman and all his sources claim that their model works because of the special nature of the Aether. Moorman neglects to explain how this works, but Bouw summarises it for us:

A plenum-æther solves many of the objections which were raised against the rare-æthers over the last century-and-a-half. Because of the Greek dismissal of the plenum, scientists envisioned the æther as a rare, thin medium, much like air but even thinner. That kind of æther must obey the rules of very small numbers. A plenum, by contrast, follows the rules of infinite numbers. For example, any portion of the plenum, no matter how small, must be infinite. In particular, this

means that there is an infinite amount of plenum-æther inside the earth. Furthermore, any arbitrarily-sized volume of the æther must contain the same amount of plenum-æther as any other arbitrary volume, namely, an infinite amount. Hence, there is as much plenum-æther inside the earth as there is in the rest of the universe. As such, it is meaningless to imagine the relative masses of earth and cosmos to necessarily be significant in terms of their relative motions. Pg 121, *Geocentricity Primer*

They claim the observable universe is embedded in this æther, and the universe's mass is insignificant compared to the æther's, so the æther controls all movements in the universe. The æther revolves around the earth once each day, carrying the sun, planets, stars and galaxies along with it. Though the velocity of distant galaxies orbiting around the earth each day is billions of times the speed of light, that is not an issue, as their movement relative to the æther they are embedded in is much slower.

The moving æther is thus responsible for the earth's equatorial bulge, the Coriolis effects and keeping satellites in orbit around earth.

The geocentrists claim that this is all derived from the protophysics of Barbour and Bertotti,²⁷ which is superior to our typical local physics.

These claims will be examined in later sections.

The Heliocentric Model

This is the model that we were all taught in High School. It does not claim that our Sun is at the center of the universe, but merely at the gravitational centre of our solar system. It is based largely on Kepler's discovery of the mathematics describing the planets'

²⁷ Barbour & Bertotti, 1977. *Il Nuovo Cimento B*, Vol. 38B, Ser. 11, p. 1 - 27

elliptical orbits around the sun and Newton's discovery of the laws of gravitation, which explain why the planets have the orbits we observe them to have. Newton and Kepler differ from the geocentrists in that they view the earth as being subject to the same laws that God made for the other planets in our solar system.

So, like the other planets, our Earth rotates on its axis and has an elliptical orbit around the Sun. Also like them, Earth's axis is tilted, and not perfectly perpendicular to the plane of its orbit around the sun. Also like most of the planets, earth also has a moon which follows an elliptical orbit round it (Figure 11).

But in every respect, our Earth is anything but ordinary. It is the only planet in the entire universe that is known to have any life on it, let alone intelligent life. Its rotation speed and orbital distance from the sun provide perfect conditions for life. The 23.5 degree inclination of earth from its orbital plane provide our annual seasons, allowing life to thrive throughout nearly the entire earth (Figure 12). Earth also has the perfect mass to allow it to retain a robust atmosphere which is again the perfect mix of gases to support intelligent life. It also has a strong magnetic field which protects its surface from most of the damaging radiation and particles emitted by the sun.

Our moon and sun work together to provide the tides that improve the distribution of life in the oceans, especially in estuaries and coastal bays.

All of the above motions of the earth and the moon around the sun also provide us with the conditions that define the timing of Jehovah God's Holy Days, which are the beginning of the spring barley harvest in Israel and the sighting of the New Moon Crescent.²⁸

²⁸ See *God's Holy Days for Christians* and *God's Calendar and the Sign of Jonah*, both on our website, for details on these often misunderstood topics.

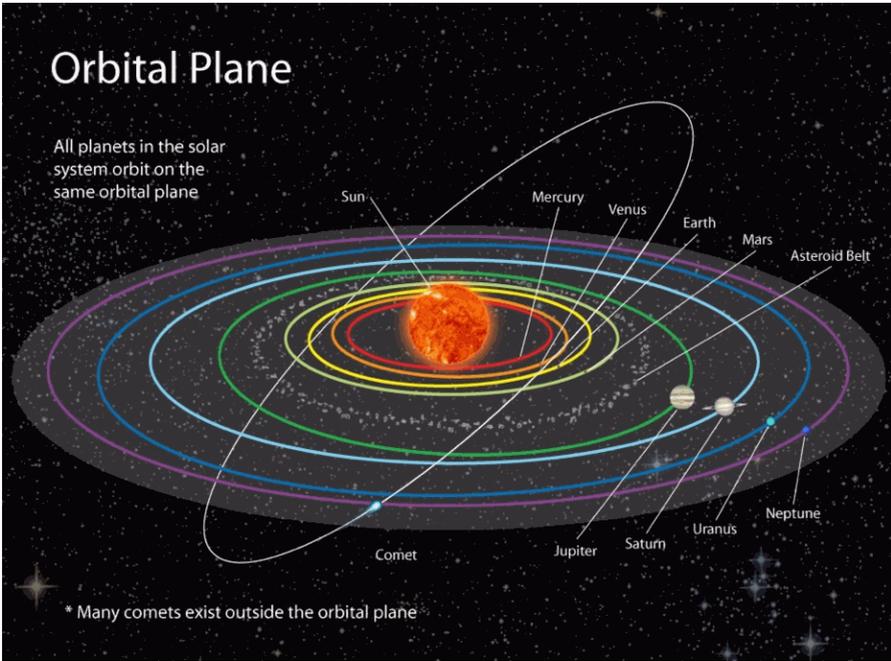


Figure 11: The Heliocentric Solar System (from kimcampion.com)

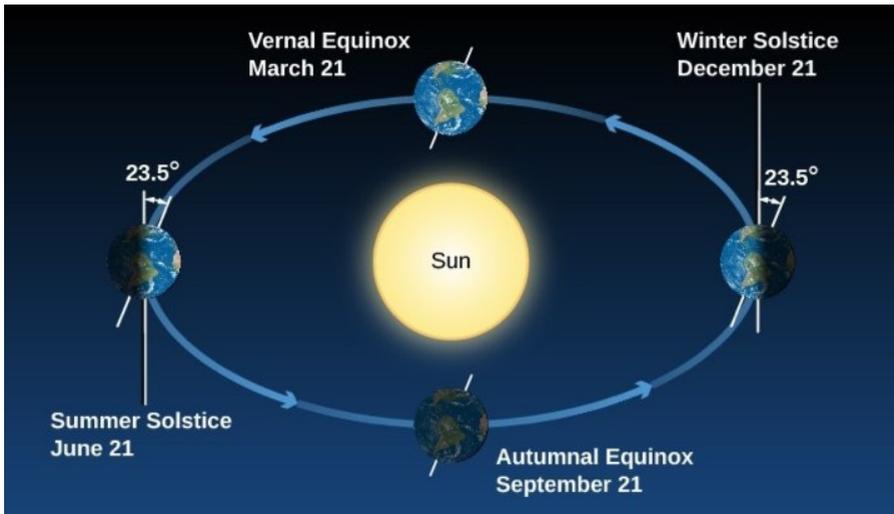


Figure 12: The Heliocentric Explanation for Earth's Seasons (From a Northern Hemisphere Perspective. From Lumen Learning)

As Moorman briefly acknowledges, Issac Newton discovered the underlying mathematics of gravity, and in so doing provided the dynamic basis for why the Heliocentric model of the solar system works. What Moorman does not acknowledge is that to do so, Newton had to invent the mathematics of Calculus, and these two essential tools have been used to develop and refine celestial mechanics ever since. Celestial mechanics is used to calculate the precise positions of the planets, moons and comets in our solar system, by combining the data on their orbits with disturbances due to the other massive objects they interact with on their orbits. Indeed, these tools were used to predict the mass and position of Neptune, which was then observed in 1846 for the first time.

This author, with others, developed software to predict the visibility of the New Moon, which is an essential part of Jehovah's Calendar system. Our calculations were based on '*Astronomical Formula for Calculators*' and '*Astronomical Algorithms*', both by Jean Meeus.²⁹ The algorithms are entirely based on a heliocentric solar system, with the earth rotating and orbiting the Sun. They work with very high accuracy. I am not aware of any Geocentric algorithms that would work with sufficient accuracy to be useful for this purpose, and much less for sending spacecraft to other planets.

Unlike the Geodynamic (Moving Earth) model, the Geocentric model has made no predictions which have later been proven, making it a very weak scientific model.

Scientific Geocentricity Issues

I am sympathetic towards Moorman, Bouw, Bowden and the other Geocentrists, as it appears that their main reason for holding this view is their mistaken belief that the Bible requires the earth to be stationary. However, as we saw above, the Bible does not require the

²⁹ Our software is available at https://chcpublications.net/BiblCal_V10-42_Setup.zip

earth to be stationary, and the geocentricity view has many fatal scientific problems as we will examine now.

Perceived Motion

Perhaps the first thing to examine is Moorman's claims about our perceptions of motion, or lack thereof.

Specifically, he claims that if the earth is rotating, and even more so, if it is orbiting around the sun, we should be able to feel that motion continually.

However, his claim reveals that he has no understanding of inertia. A pertinent example of inertia that will be familiar to most people is the experience of travelling on a long-distance commercial jet. They will typically fly at speeds of about 900 kilometers per hour, or 560 miles per hour. This compares somewhat with earth's rotational speed of 1600 kilometers per hour (1000 mph) at the equator.

Initially, one can feel the movement of the plane as it accelerates down the runway and forces its way up into the sky and towards its cruising speed and altitude. What we are feeling is, of course, our inertia, or tendency to stay the way we are. The jet engines push the aircraft forward, and we are in turn pushed back into our seats as we lag behind the aircraft's increasing velocity.

But as the aircraft approaches its cruising speed and altitude, its rate of change, or acceleration, becomes less and less, and we become less and less pushed back into our seats. If we tried to walk in the plane at this time, it would still take more work to walk forward in the plane than backwards. But when cruising speed is reached, we are moving at the same velocity as the aircraft, and have the same inertia as it has. So now we are no longer pressed back in our seats at all, and it is just as easy to walk forward in the plane as it is to walk backwards in it, even though we are moving at 900 kilometers per hour relative to the earth's surface far below us. And if we were

to jump up off the floor of the aircraft, we would not suddenly begin flying towards the back of the aircraft. That is because there is no force acting on us to alter our inertia. Even the air inside the aircraft is moving at the same speed as the aircraft it is in, so it does not push us backwards. So we see that the aircraft, the air in it and we are all parts of one integrated system.

The situation on the earth's surface is much the same. The earth and the air surrounding it form a single integrated system. So the air is carried along with the earth's surface beneath it. So on a day when there is no wind, the speed of the earth beneath us and the air surrounding us is exactly the same, even though they are both rotating at up to 1600 kilometers per hour. But unlike the aircraft scenario, the earth's rotational speed is always steady, so we always have the same inertia it has when we are 'standing still', and we do not feel like we too are travelling at 1600 kph. Like in the aircraft, we can walk west or east and even jump up and down and do not feel any difference due to the earth's movement. Exactly the same logic also applies to the much higher speed that our planet has as a result of its orbit around the sun (107,000 kph). As long as this movement is smooth and consistent, we will not be able to feel it. And this is exactly what physics teaches us should happen, and what many experiments have consistently confirmed to be the case. And this is not a new concept. It was proposed four hundred years ago by Galileo.

Though it may initially appear simpler to believe that the earth is stationary, the reality is that it is actually far more difficult to have a stationary earth than a moving earth, as will become clear as we continue. It is completely reasonable to believe that Jehovah God created our Earth and its atmosphere rotating and travelling at pretty much their current velocities right from the start.

Earth's Atmosphere

Moorman repeatedly claims, but without a proposed mechanism or any proof, that our atmosphere is functionally disconnected from the earth beneath it, so it should be stationary while the earth rotates beneath it, if the earth is rotating. But as we saw above, they are in fact a single integrated system, and there is absolutely no reason to believe otherwise. Gravity holds the dense base of the atmosphere firmly against the earth's surface, locking them together. Indeed, their contact surface is an enormous 510 million square kilometers (197 million square miles). And space above it is a near-perfect vacuum, so it can do virtually nothing to brake the movement of the air that is moving in sync with the earth. To state this another way, the earth provides a powerful force to keep the atmosphere moving with it, and there is NO force acting to stop our atmosphere from moving with the earth.

In fact, Moorman's proposed geostationary model is the one with a serious problem. If the universe is embedded in an æther that revolves around a stationary earth once per day, and it is so powerful that it can drag the entire universe around with it, the æther should create a strong drag on the outer atmosphere, creating constant massive hurricane-force winds at the earth's surface.

But the earth and its atmosphere are indeed a more complex system than the air inside an aircraft. As Moorman points out, the Earth's surface is rotating at 1670 kph (1038 mph) at the equator, while it is essentially stationary at the geographic poles. As noted in the Air Travel and Wind Speed section (pg 17) above, it is the Earth's rotation that causes our prevailing winds. The major air circulation cells (Figure 13) are intimately involved in this. Let's put some numbers to how this works. We will follow an idealised Hadley cell surface air flow from Cairo, at 30°N latitude to Libreville, at 0.4°N latitude. This is a distance of 4010 kilometers (2,492 mi). We will assume the wind is the average wind speed in Chad, located between these two cities, which is 13 km/hr (8.1 mph). This means the air would take 308 hours, or 12.9 days to get from Cairo to Libreville.

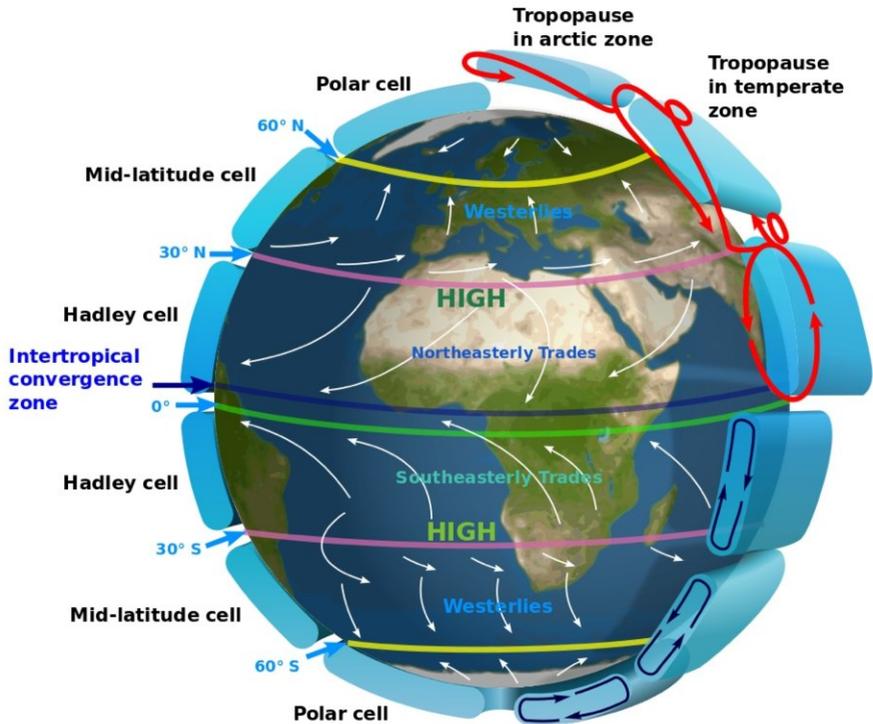


Figure 13: Atmospheric Air Circulation Cells (From Wikipedia)

So, how much velocity does the air need to pick up on this journey, and how fast must it increase? Libreville is easy. It is almost on the Equator, so it is rotating eastwards at 1674 km/hr (1040 mph). Cairo is rotating eastwards at 1450 km/hr (901 mph—see <https://www.vcalc.com/wiki/MichaelBartmess/Rotational+Speed+at+Latitude>). So the air needs to pick up 224 km/hr (139 mph) of eastward velocity during the journey. This means that every hour of the journey, the air needs to pick up 0.73 km/hr (0.45 mph). This is actually a very reasonable amount of velocity for the air to acquire per hour, and is only about 1/18th of the average wind speed. Indeed, it would have a Beaufort number of 0 and is called calm. This small effect due to rotation is why local weather conditions

frequently overwhelm its effect and cause the wind to blow in other directions. And of course there is a small lag in this whole process, so the air (wind) overall blows towards the south-west instead of directly south. So we have the famous northern hemisphere Trade Wind. The southern hemisphere's Hadley cell also does this, but the surface air moves north from 30° South, and it also lags, making its average wind direction towards the North-west.

These wind directions can thus be clearly seen to be the result of the earth's rotation, and there is absolutely NO requirement for them to tear the Earth's surface apart as Moorman claims. Instead, they provide a healthy and necessary circulation of air and moisture.

Plenum Aether

Moorman and Bouw stress the importance of the Plenum-Aether to their model as quoted on pages 59 & 60. Let's first look into Bouw's claim that gravity does not matter in their system due to the infinite amount of æther inside the earth, which effectively gives it nearly infinite mass, such that the entire universe can then revolve around it and it can remain unmoved.

The reality is that if we even doubled the mass of earth, we would all die, likely within a day or so. Gravity would be so strong we would be unable to do much more than crawl along the ground, trees and tall buildings would collapse and the air would become so dense that we would have excess nitrogen and oxygen in our blood. If we managed to stand, our hearts would have to work very hard to pump blood from our feet to our heads.

So what would happen at near infinite increases in mass? Our earth would immediately become an enormous, lifeless black hole that would rapidly suck in our entire solar system, and then begin dragging in our galaxy. So it would not become the center of a stable, revolving universe, but instead the center of an all-consuming

gravity well that would eventually destroy the entire universe. So, say farewell to Bouw's plenum-æther.

And what of the protophysics of Barbour and Bertotti, which is supposed to support the geocentric model? If you read their paper, you will not find a single word about æther. Nor do they propose a geocentric solar system. Instead, they propose a model that has a solar system which works in accord with a sun-centered Newtonian model, but they then propose that our solar system could be the center of a rotating universe for modelling purposes, which they oddly call Ptolemaic. And they also conclude by acknowledging that their model cannot account for the mass anisotropy of the universe, and therefore it is invalid.

Though it is possible, perhaps even likely, that Moorman does not understand this, it appears that Bouw is deliberately misapplying their physics to support geocentricity. And it also seems that they have not heeded their own warning about the dangers of 'creative use' of mathematical physics on Moorman's pg 88.

The Four Experiments

And what of the four physics experiments that they claim prove that the earth is stationary? They were actually experiments designed to test the properties of the æther, which was widely believed to exist at that time. The results revealed that æther did not exist, not that the world was stationary. They are not usually discussed in basic physics courses because virtually no one today believes æther exists, so more relevant topics are covered.

But let us look at them each in more detail:

The Michelson-Morley Experiment

This experiment is explained clearly at <http://galileoandstein.physics.virginia.edu/lectures/michelson.html>

This experiment was intended to measure the change in the speed of light caused by the æther wind. They tried to ensure there was an æther wind by assuming the æther was stationary, so the speed of earth's orbit around the sun and its rotational speed would move through it, creating the wind. They found that there was no æther wind. That left two options: 1: There was no æther to produce such a wind, or 2: the earth was moving in sync with the æther, so there was no æther wind.

Remember that the Geocentric model claims the æther revolves around the earth once per day, as we saw on page 57. This means there HAS TO BE an æther wind if the earth is stationary. And this experiment proved that there is no æther wind whatsoever, which demonstrates that the geocentric model is false. Moorman and Bowden say nothing about this embarrassing fact.

The geocentrist claim that these experiments prove that the earth is stationary is a highly biased interpretation, and later research confirmed that the result actually demonstrated that there was no æther to produce a wind.

The Michelson-Gale Experiment

This was a more ambitious combination of the Michelson-Morley and Sagnac experiments. The details of this experiment can be read at: adsabs.harvard.edu/full/1925ApJ...61..140M

You will discover that the experimenters believed that they had actually confirmed the magnitude of the earth's rotation velocity, not that it was stationary as Moorman claims (page 144 of Michelson's article). They also believed that the results indicated that either the

æther, if it existed, was stationary in reference to the earth's surface, or the results were explained by relativity (their page 143).

This link also confirms their results, and explains why the experiment could have only been consistent with relativity, not stationary æther:

https://en.wikipedia.org/wiki/Michelson-Gale-Pearson_experiment

So again, the experiment confirmed there is NO æther wind and can only confirm that æther exists **if** Special Relativity is false. It certainly does not confirm that the earth is stationary as the geocentrists claim.

Airy's Failure

Airy's report to the Royal Society of this experiment can be downloaded here: <https://doi.org/10.1098/rspl.1871.0011>

Airy confirms that there was no appreciable aberration of the light through his telescope caused by filling it with water. The aberration was supposed to be caused by the drag of æther on the light due to the earth's rotation. He says that the null finding was an important result affecting the Undulatory Theory of Light. There is no record that he saw the results as an indication that the earth was not rotating. Over time, we have learned why he found no evidence for an æther drag causing wave light aberration. Light is now known to have both wave and particle components and that it can travel in a vacuum. To restate that, light does not need æther to travel through space, and we now know that æther does not exist. So rather than indicating that the earth does not rotate, his experiment indicated that there is no æther.

The Sagnac Experiment

This research was intended to distinguish "the effect of the relative motion of the ether". Sagnac believed his results showed that the æther existed and was stationary relative to the earth's surface.

However, his results were also consistent with Einstein's Special Relativity, which shows that æther does not exist, so his experiment could not conclusively prove that stationary æther existed. And as noted above, Geocentricity teaches that the æther revolves around the earth once per day, so even a stationary æther result would falsify geocentricity.

Since then, many other experiments have consistently demonstrated that Special Relativity does describe how light behaves and confirmed that æther, stationary or otherwise, does not exist. Even the GPS clocks have to be calibrated to allow for relativistic effects to give accurate positions.

More information on this experiment can be found at: https://en.wikipedia.org/wiki/Sagnac_effect

So we are left with NO physics that unambiguously supports the geocentric model, and a great deal of physics that demonstrate that æther and æther winds do not exist and that our earth is a dynamic body that rotates and orbits around the sun.

And it is impossible to not notice that the æther of the geocentrists is never mentioned in the Bible and is in fact magical, as they have it produce even completely opposite effects whenever and wherever they require it to. It is therefore like the mythical dark matter and dark energy required by the Big Bangers. Remember that magic is not something that God uses or tolerates (Eze 13:20, Isa 47:9).

Satellites and Rockets

This is another topic that carries over from the Flat earth section. Though Moorman accepts that rockets and satellites exist, he thinks that scientists do not really know how they work. Given the important role that these satellites play in our modern communication and navigation systems, and how many of them have been successfully placed into orbit, this seems to be a very odd claim.

Moorman especially has problems with the geostationary satellites, as they clearly fit perfectly with the concept that our earth is rotating, and they are deliberately placed at a height where their orbital speed makes their position synchronous with the rotating earth's surface beneath them. Curiously, Moorman presents some of the physics behind these geostationary satellites, but then claims that it is far too complex to ever work, and attempts to supplant the real physics with alternative æther and non-rotating earth based explanations.

He even claims that the satellites can be held at the geostationary height by balancing the gravitational forces of the sun and earth. But this idea is immediately self-defeating, as he also claims the sun orbits the stationary earth every day, so such a satellite would also need to orbit the earth each day to remain balanced. So it could not remain permanently above same location on the earth as is required. And even if the sun and earth were both stationary, there would only be one location where there could be a geostationary satellite, but in reality there is an entire ring above the earth's equator where large numbers of these 'fixed' satellites are placed. And lastly, the point where the gravitational fields of the earth and sun are balanced is much farther away from earth than the height of the geostationary satellites, as can be seen in this NASA article: <https://earthobservatory.nasa.gov/features/OrbitsCatalog>.

He alternatively claims that these satellites are held in space by the spinning of the universe around the stationary earth. If so, the farther one gets from the earth's surface, the faster the satellite should be moving to keep in sync with the increasing spin rate of the universe. But the opposite is in fact true. The farther the satellite is from the earth, the slower its velocity. For example, the Aqua satellites, at altitudes of about 705 km (438 miles), travel at over 27,000 km/hr (16,777 mi/hr) and orbit the earth every 99 minutes. Compare this with the geostationary satellites which are 35,780 km (22,233 mi) from the earth's surface, and travel at a 'sedate' 11,100 km/hr, (6,897 mi/hr) orbiting the earth exactly once per day. These facts are consistent with our rotating earth with its known mass and

gravitational field. None of Moorman's proposals would result in a workable satellite.

Moorman also claims that all rocket scientists use calculations based on a stationary earth. However, the reality is that they use the earth's motion, both rotational and orbital, to help them get the maximum momentum from their rockets so they can reduce their fuel requirements. There are a number of Christian scientists involved in space research who are deeply involved in these issues, and I do not know of one of them who believes in a stationary earth.

Mississippi Flowing Uphill?

This section essentially deals with the earth's equatorial bulge, or oblateness, which is caused by the earth's rotation. Moorman both denies it can exist and then says it does exist and attributes it to the effect of the universe rotating around earth.

His denial is largely based on the fact that the Mississippi River, if its distance is consistently measured from the center of the earth, must flow 'uphill' as it moves southwards and thus towards the equatorial bulge (his page 97). The mouth of the Mississippi is, on that basis, actually three miles further from the center of the earth than its headwaters. He then claims that rather than the Mississippi flowing into the Gulf of Mexico, the salt waters of the Gulf should be flowing back up the river to its headwaters.

The reason the river does not flow backwards is exactly what Moorman is denying. The earth's equatorial bulge is due to its rotational velocity. But it is not just the rock that bulges, but also the water. This is why elevations are given in meters Above Sea Level (ASL). The "mean sea level" used for each measurement is the correct one which has been measured for the latitude in question. At the equator, the actual sea level is 21.32 km (13.25 miles) further from the earth's center than the sea level is at the North Pole. But in

both cases the sea's surface is at Zero meters above its local mean sea level.

So the mouth of the Mississippi (at 29°N) is at zero meters ASL, while its headwaters at Lake Itaska (at 47°N) are at 450 m (1475 ft) ASL. This makes it totally reasonable that the river flows down the sea level gradient and into the Gulf.

On a stationary and uniform world, the sea level would be the same distance from the earth's center everywhere. Moorman unreasonably insists that this should also be the case on a rotating world, ignoring the mathematics that explain why and how it works. The Mississippi River clearly contradicts him, and demonstrates that the world is indeed rotating.

Proof of this is the observation that masses weigh less at the equator than they do at the Poles, by about 0.5 percent. This is not merely a theoretical difference, but one that has been experimentally demonstrated with electronic balances. But Moorman incorrectly claims that it is merely an unmeasured theoretical difference, as he also does for various other inconvenient facts. Such a difference could not exist on a stationary earth.

His other claim that the bulge (and the Coriolis Effect) is due to the universe rotating around the earth requires a universe that has been collapsed into a plane that corresponds with the plane of our equator. Unfortunately for the geocentric position, the mass of our universe is not in a plane, but is distributed all around us. Nor is it near enough to us to produce an effect as remarkable as our equatorial bulge.

Equatorial bulges have also been measured on the other rapidly rotating planets such as Mars, Jupiter, Saturn and Uranus. In each case their bulge aligns with its planetary equator, not with earth's equator. These facts undermine the geostationary model.

While we are discussing this bulge, it is worth noting that Moorman implies that God created the Earth as a perfect sphere, and says that

as Big Bang followers claim Earth became oblate while it was still molten, believing the Earth has a bulge means that geodynamic Christians must accept deep-time evolution (his page 89 onwards). The reality is more complex than Moorman's concept of Creation. There are many reasons to believe that Jehovah God created our Earth as a dynamic body that was already rotating and moving along what would become its orbital path when the Sun was created. As such, earth was created with its optimum oblateness and smoothly transitioned into an orbiting planet during Day Four of Creation Week. These were not motions that were added in later as ad hoc corrections for previous oversights.

Lastly, Moorman presents data from scientists who discuss small localised variations in Earth's bulge due to local variations in rock densities and volumes. He also says he cannot find an example of a full earth photo taken from space that has been measured north-south vs east-west to prove there is a bulge and implies that these items prove that the equatorial bulge does not exist. This is an absurd conclusion, and indicates that Moorman has little understanding of the issues he is presenting. The elevation of the entire surface of the earth has been measured to within thirty centimetres (one foot) by satellites for many years now.³⁰ They easily and clearly show that there is an equatorial bulge which averages about twenty-one kilometers (13.3 miles).

The Warp-Speed Universe

In science fiction, the Star-Trek starships had imaginary warp-speed drives which would enable them to travel across galaxies in a matter of hours. We will see that the Geocentrists propose a universe in which almost the entire universe is travelling much faster than Captain Kirk could have ever asked for.

³⁰ However, your typical inexpensive GPS receiver cannot match this, and can be out by up to 15 meters vertically. But note that even so, it gives you the elevation above the local sea level, not your distance from the center of the earth.

This was partly dealt with on Pg 16, where I noted that “our sun would have to travel at 2% of the speed of light to make an orbit around the earth in one day. The nearest star, Proxima Centauri, at 4.26 light-years away, would have to travel at 4880 times the speed of light to circle the earth in a day.” Let us also add in the example of the Andromeda Galaxy, our nearest major galaxy and the most distant object visible with the naked eye. It is 2.54 million light-years³¹ away. So, to orbit the earth in one day, it would have to travel 15.94 million light-years, or 664,185 light-years per hour. So it would be moving so fast that it could move from one end of our Milky Way galaxy to the other in 9.5 minutes. Captain Kirk would be delighted! And in a year it would have to move 5.82 billion light-years. To restate this, it would have to be moving at 5.82 billion times the speed of light.

Let’s compare this with what Moorman, on his page 88, says is the “supposed” speed of the earth, including our motion around our galaxy:

We are moving at 1,913,785 MPH (3,079,938 km/hr). Yes, that is pretty fast. But let’s accept this speed and convert it into speeds given in light-years so we can compare it to the galaxies:

In a day, our earth would travel 0.000000781 light-years.

In an entire year, the earth would travel 0.00285 light-years.

So in order to have our earth stationary, our nearest major galaxy must be moving 2,040,000,000,000 times as fast as the earth needs to move. Restated, that is over two trillion times faster, and that is our nearest major galaxy. The more distant galaxies would have to move thousands of times faster than even this. So Moorman’s

³¹ A light-year is the distance light can travel in one year at its current speed of almost 300,000 kilometers per second (186,400 miles/sec). This is 9,460,000,000,000 km (9.4 trillion km or 5,878,000,000,000 ~ 5.9 trillion miles).

unwillingness to accept the earth's relatively sedate motion 'forces' the entire universe to move at truly stunning speeds.

The consequence of rotating the universe at these speeds is catastrophic. The energy in these velocities is massively greater than any possible gravitational attractions. Instead of rotating, our universe would be thrown apart, and at such speed that we would never see any further light from any stars again, not even those closest to us. Within two and a half years, Andromeda galaxy would be leaving the currently known extent of our universe. The other galaxies would be long gone. Our night sky would be starless.

Finally, there is accumulating evidence that travelling even at the speed of light is impossible, so this geostationary model clearly has many serious problems.

As we saw above, they attempt to justify this astounding situation with their mythical moving æther.

Their proposed stationary earth immediately results in an impossible universe that Jehovah God would have to be continually repairing with miracles to stop it from self-destructing. In contrast, our actual universe, in which our earth rotates, has normal gravity and orbits around our sun, is a universe which, once created, is largely self-maintaining as it obeys all the basic laws of physics.

Our Oscillating Sun

Another claim of the geocentrists, as we saw on page 56, is that as the sun orbits around the earth, it slowly oscillates north to south and back to north of the earth's equatorial plane once per year to give us our seasons.

However, there is nothing presented to explain what force would cause the sun to stop spiralling north, then reverse direction and start spiralling south. Their omission is understandable, as there is no

physical reason why the Sun would do this. Like many geocentric proposals, it would require constant miraculous intervention by God to work.

The Butterfly Earth

Though Moorman advocates a totally stationary earth, some geocentrists favour a 'butterfly earth', by which I mean an earth that has been 'pinned' to a fixed place in the middle of the universe, like a dead butterfly pinned to a board, but which can rotate daily. This modified Tyconic system is one step closer to reality, in that the universe no longer needs to orbit all the way around earth every day. It also provides reasonable forces to explain the earth's bulge, the Coriolis effects and geostationary satellites.

But it too is plagued with many impossible properties. One of them is the annual progression of the stars around the earth, previously mentioned on page 46. In this version of the geocentric model, it can be 'explained' by having the sun and universe orbit around the earth only once per year instead of daily. One could even have the sun orbit at a 23.5 degree angle to the earth's equatorial plane, which could plausibly give us our annual seasons.

But as in Moorman's totally static earth, this scenario also immediately begins to fall apart. The rotating fixed earth means that the Andromeda galaxy still has to travel 15,940,000 times faster than light to make it around earth annually. Once again, this is a truly stupendous and impossible speed.

But 'fall apart' is not quite correct. Fall together would be more accurate. The sun has the mass of 333,000 earths. Our earth does not fall into the sun because it is orbiting around it at a velocity of about 30 kilometers per second (18.6 mi/sec), which is 110,000 kilometers per hour (68,350 MPH). This velocity perfectly offsets the strong gravitational attraction between the sun and the earth, so

we always keep falling ‘towards’ the sun, but, on average, never actually get any closer to it.

So what happens when the earth stops orbiting, and instead the sun supposedly orbits the earth once per year? The sun is now moving at 30/365.24 or a mere 82 meters per second (270 ft/sec). The stationary earth can no longer resist the sun’s gravitational force and immediately begins to fall towards the sun, accelerating faster and faster. Within a month, we would all be roasted to death. Within about 65 days, the now dead earth would smash into the sun. After an impressive flare, the earth would dissolve into the sun and be gone forever.

Though the geocentrists huff and puff about the magical properties of their plenum æther, they can not reasonably deny that this horrific scenario would be the truth. They agree that all of the other planets follow Newton’s gravitational law in their orbits around our sun. They even agree that this is the gravitational law that controls how our moon orbits our earth. They need to be honest about the consequences of their theory: Stop the earth from moving and we are soon toast!

I much prefer the system Jehovah God created, in which we safely orbit our massive Sun by obeying His momentum and gravitational laws.

Scientific Problems with the Heliocentric Model

The Heliocentric solar system model explained above does an excellent job of accounting for our everyday experiences and how our solar system operates on an observable basis.

However, the scientific model gets into trouble when it unjustifiably rejects God’s description of how and when He made the earth, our solar system and the universe around us and why He created life on earth.

They then begin inventing absurdities like the Big Bang (nothing explodes and becomes everything), non-existent entities like dark matter and dark energy are ‘required’ to hold their supposedly multi-billion year old universe together, random chemical reactions are claimed to defy all known laws of chemistry and biochemistry to produce magnificently designed living creatures, etc, etc.

Stationary Earth and Evolution

In several places Moorman claims that accepting a solar system where the earth orbits the sun is the same as accepting a universe that is billions of years old and that evolution is the source of life on earth. But they are independent concepts and are not the same in any way.

The billions of years and evolution are actually like their geocentric idea—None of them are taught in the Bible! In contrast, the Bible clearly and unambiguously teaches that our earth, and the universe around it, are only a bit over six thousand years old. It also indisputably teaches that Jehovah God and His son Jeshua made the earth and created all of the kinds of life on it. Both the very rapid origin of these kinds and the order that Jehovah created them in is totally inconsistent with the teachings of evolution. The Bible also makes it clear that ALL of these kinds of plants and creatures were living together by the end of Creation Week.³²

Modern science clearly shows that these geocentric models are invalid, and contradict many experimentally proven physical laws. In contrast, modern genetics and biochemistry, as opposed to the increasingly desperate rhetoric of evolutionary theorists, are steadily revealing that evolution cannot explain how life began, nor how any of the many kinds of living creatures came into existence. As our genomic knowledge increases, it becomes more and more obvious

³² Much more on these topics can be found in our Books of Moses series at <https://chcpublications.net/>.

that life requires an incredibly intelligent and skilful being to have programmed the massive amounts of precise, detailed information necessary in its DNA for any cell to survive and reproduce. It also requires that being to have formed the initial living cells which that information was placed within, and even requires that being to have created an environment in which those organisms can thrive. Genesis chapter one reveals that our God has all of these capabilities and did all of these things.

Conclusion

The idea of a stationary earth in the middle of an orbiting universe may initially seem like a simple concept, but when one examines the details of how such a universe would have to work, the stationary earth idea becomes both impossible and absurd. And when one carefully examines the Hebrew and Aramaic Scriptures that geocentrists claim teach a stationary earth, the scriptural support for such an earth evaporates. Likewise, the ‘protophysics’ and magical æther required to make it even appear to be workable also evaporate into nothing when closely examined.

The stationary earth concept of the Geocentrists is based on inaccurate translations in a four hundred year old Bible and obsolete fourteenth century physics and Tyconic models of the solar system. Despite his book’s title, Moorman has failed to make either a Biblical or observational case for Geocentricity.

In contrast, the Heliocentric model of our Solar system is compatible³³ with the Hebrew Scriptures, which are thousands of years old, and also with modern celestial mechanics.

³³ Which is not to say that the Bible actually teaches a heliocentric solar system. It does not, but it also does not teach a geostationary world like the geocentrists believe in. The Bible leaves this question open for us to investigate.

It is destructive for Moorman and the other geocentrists to demand that Christians accept their very distorted views of both Scripture and how our planet, solar system and universe work.

I urge them to go back to the original Hebrew and Aramaic scriptures, discover their errors, do some genuine study of the physics God used to build and uses to operate our universe, repent and remove their geocentric material so they stop putting treacherous and unnecessary stumbling blocks in the way of people who want to walk with Jehovah God and His Son Jeshua.

Appendix

For more extensive and scholarly treatments of Flat Earth and Geocentricity issues, please read:

<https://answersingenesis.org/astronomy/earth/does-bible-teach-earth-flat/>

<https://creation.com/refuting-absolute-geocentrism> This is a long article with many excellent details in it.

<https://answersingenesis.org/creationism/arguments-to-avoid/geocentrism-and-creation/> This article is mostly addressing arguments presented in Bouw's book *Geocentricity*.

<https://answersingenesis.org/reviews/books/geocentric-gobbledegook/> This is a review of Marshall Hall's book *The Earth is Not Moving*. Hall's book appears to be a source for many of Moorman's more peculiar ideas.

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Scripture quotes are from our CHCoG translation.

Some Other Resources Available from <https://chcpublications.net/>

Publications

The Holy Bible - CHCoG Version - This translation from the original Hebrew and Aramaic is accurate and readable, giving you a clear understanding of how the New and Old Covenants are interlocked and God's message to you.

Everlasting Life is God's Gift - Does the Bible teach that you have everlasting life? If not, how can you receive God's gift of immortality as His child?

Fifty Years in the Church of Rome - Charles Chiniquy, a famous Catholic priest for 25 years, recounts his experiences that led him to God's Gift of Salvation.

Jeshua the Messiah: Is He the Son of God or Part of a Trinity? - Explores the relationships between God the Father, our Lord Jeshua, the Holy Spirit and us.

Books of Moses - Fact or Fiction Series - Are the miracles recorded in Genesis and Exodus our true history? Do the facts support Special Creation or the Big Bang & Evolution scenarios? What about the Flood, Babel and the Exodus?

What is God's Name? - How can we know what God's Name is and how to Pronounce it? Does the Bible teach us to use God's Name?

The Ten Commandments - What are God's Ten Commandments? How do they guide us in our relationships with God, our family and our neighbours? Shows how obedience to Jehovah's Instructions would result in true civilization.

God's Calendar and the Sign of Jonah - Shows how God's Calendar reveals that Jeshua truly kept the Sign of Jonah, His ultimate proof that He is the Messiah.

The Sabbath in Scripture - Has God's Seventh-day Sabbath been 'done away with'? What does the Sabbath mean, and does God want us to keep it?

Sex, God and Families - Pamphlet exposing the dangers of sexual immorality and outlining the benefits of following God's sexual principles.

Eastern Meditation and Jeshua the Messiah - Recounts the experiences of a CHCoG member who became a Christian while practising Eastern Meditation.

Animals in the Bible- What does the Bible teach? Does God love His animals, and how should we treat them? Are they intelligent, relational beings?

Spirit, Soul and Body - Take a deeper look at the Bible's teachings about the composition of human beings and the roles of our soul and spirit.

Radiocarbon Dating - Shows how changes in radioactive carbon levels can drastically alter radiocarbon dates. Not heavily technical.

Rome's Challenge: Why do Protestants Keep Sunday? - This Roman Catholic article proves there is no scriptural basis for changing the seventh-day Sabbath to Sunday, and shows that the Roman Catholic church made the change.

Software

Calculated Biblical Calendar - Calculates dates of Annual Holy Days, Crucifixion, Flood, Creation: allows you to test the new moon visibility locally.

Radiocarbon Dating - Calculates the effects that changes in the geomagnetic field and radiocarbon/carbon ratios, etc, on radioactive dating.

Free Library

We have a large range of Christian and Creationist literature, CDs and DVDs that are available for borrowing within Australia. Please contact us for our list.