

Reply to *Discover Magazine's* Critique of Geocentrism

By Robert Sungenis, Ph.D.



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Geocentrism? Seriously?

By Phil Plait

In my long, long experience as both a scientist and an active skeptic, I have seen people believe in a lot of seriously, um, odd stuff. In many cases, it doesn't matter how overwhelmingly the evidence is against them, or how even simple logic will unravel their tangled theories. They cling to these beliefs like a drowning man clings to a life preserver.

And even with all this, I have to scratch my head over Geocentrists.

R. Sungenis: I'll give Mr. Plait the prerogative to scratch his head since I understand that if you have been deluged since early childhood with the notion that the earth goes around the sun, it would be very difficult to entertain, much less believe, the opposite notion upon the word of someone you don't know, or believe an idea that is commonly understood to have been already discredited or is not held by very many people. Of course, this is the plight of all new ideas, at least until enough evidence accumulates that the damn begins to break. For example, when Dr. Semelwies told his fellow doctors the reason women were dying soon after they delivered their babies was that they had not washed their hands after working on cadavers, he was so utterly disdained by the medical community that he ended up in an insane asylum. It took many years for Semelwies's theory to be found true and when it was accepted the society treated it as completely obvious. Hence the words of **Arthur Schopenhauer** are quite apropos: "All truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident." Mr. Plait's vision also might be obstructed by what **Arthur C. Clarke** described as: "It is really

quite amazing by what margins competent but conservative scientists and engineers can miss the mark, when they start with the preconceived idea that what they are investigating is impossible. When this happens, the most well-informed men become blinded by their prejudices and are unable to see what lies directly ahead of them." **Leo Tolstoy** said something even more penetrating: "I know that most men...can seldom accept even the simplest and most obvious truth if it be such as would oblige them to admit the falsity of conclusions which they have delighted in explaining to colleagues, which they have proudly taught to others, and which they have woven, thread by thread, into the fabric of their lives."

Interestingly enough, the very magazine Mr. Plait promotes invited geocentrists and others like them to publicize their ideas, stating: "When an author puts himself on the line by embracing an unfashionable idea, even though he is guaranteed to generate scorn or indifference, this should somehow be recognized" (**Discover Magazine**, Dec. 2006). Let's see how Mr. Plait does or does not fulfill these prophecies.

Mr. Plait: These are people who believe that the Earth is fixed in space, unmoving and unmovable, and the Universe literally revolves around it. Without exception, in my experience, these followers of Geocentrism believe in it due to a literal interpretation of the Bible. Finding passages in the Bible to support this belief isn't hard; Genesis is loaded with them.

R. Sungenis: Actually, Genesis has very few. Most are in the Psalms. All in all, there are 12 different Old Testament books that teach the earth is motionless and that the sun revolves around the earth. Genesis 1 is distinguished for the fact that the first chapter says the earth was created three days before the sun, stars and moon. As such, since, as Genesis 1:5 says, there was already evening and morning before the sun was created, then the logical question for heliocentrists is when did the earth begin to move, and from whence comes the idea that it is the rotation of the earth that causes the day and night? Genesis 1:3 insists there was a separate and original light that caused the day and night. So how could God have made the Earth to revolve around nothing but later put the sun in that place? Nothing makes sense if read from a heliocentric perspective.

But I think the real reason Mr. Plait's made his assertion about Genesis being replete with verses on geocentrism was to tip off his Discover audience of agnostics that he is merely confronting religious devotees who, the implication goes, are a bit irrational when it comes to the Bible having to compete with modern science. Perhaps some religious people are irrational. But that is certainly not the case with me or my co-author, Dr. Robert Bennett, who wrote the book *Galileo Was Wrong: The Church Was Right*. We approach this topic on scientific terms, for if the science does not support geocentrism I certainly would not waste my time, no matter how religiously devoted I was. What you will see in this short dialogue is that it is Mr. Plait who doesn't understand his own science, and in my travels that is not as uncommon as you may think.

Mr. Plait: However, like young-Earth creationism, the problem here is in that "literal" part*. If you take the Bible to be true word for word, then you have to deny a vast amount of reality, and almost everything we've learned about the Universe since the Bible was written.

R. Sungenis: This is the usual canard that is foisted into the discussion, and probably with good reason. If what Mr. Plait says is true, the discussion is over. Science wins, the Bible loses. But the \$64,000 question is: does modern science possess the "reality" that Mr. Plait believes it does? If Mr. Plait had merely said: "If you take the Bible literally you would have to deny almost everything we've learned about the Universe since the Bible was written," that would be a more acceptable proposition, since he is not claiming that "everything we've learned about the Universe" is necessarily correct. Well, to that question, we have dedicated a whole chapter (Chapter 11 in *Galileo Was Wrong: The Church Was Right*). It shows the foibles and fallacies of modern science, most of which have occurred just in the last few hundred years.

You see, Mr. Plait is working off the common fallacy that modern science is a monolithic consensus of belief erected by impeccable men who would never think of advancing their own agendas or discrediting perfectly good ideas that compete with their own. The truth is, modern science is anything but honest. You have to dig very deep to find the truth, not only because truth itself is hard to find but because fallible and agenda-driven men often lead us in the wrong direction. And when it comes to the cosmos, we have even more fallacious, unstable and incredible concepts than in some of the other sciences. As J. J. Thomson once quipped: "We have Einstein's space, de Sitter's space, expanding universes, contracting universes, vibrating universes, mysterious universes. In fact the pure mathematician may create universes just by writing down an equation, and indeed if he is an individualist he can have a universe of his own." Gerard de Vaucouleurs put it:

"Less than 50 years after the birth of what we are pleased to call 'modern cosmology,' when so few empirical facts are passably well established, when so many different over-simplified models of the universe are still competing for attention, is it, may we ask, really credible to claim, or even reasonable to hope, that we are presently close to a definitive solution of the cosmological problem?...Unfortunately, a study of the history of cosmology reveals disturbing parallelisms between modern cosmology and medieval scholasticism; often the borderline between sophistication and sophistry, between numeration and numerology, seems very precarious indeed. Above all I am concerned by an apparent loss of contact with empirical evidence and observational facts, and, worse, by a deliberate refusal on the part of some theorists to accept such results when they appear to be in conflict with some of the present oversimplified and therefore intellectually appealing theories of the universe...doctrines that frequently seem to be more concerned with the fictitious properties of ideal (and therefore nonexistent) universes than with the actual world revealed by observations."

In essence, Mr. Plait is working on a myth – a myth that wants us to believe that "everything we've learned about the Universe since the Bible was written" is the absolute truth, and upon that truth Mr. Plait will judge whether we can take the Bible "literally" or not. The real truth is, the Bible always remains the same; it is science that changes every generation. As Max Planck once said: "Science proceeds funeral by funeral." True theologians hold to the maxim that true science will never disagree with the Bible, but that only begs the question as to what is "true science." As the Bible speaks of a God who gives truth and a Devil who tell lies, so science has scientists who give truth and scientists who tell lies, whether deliberately or ignorantly.

Mr. Plait: That has not stopped some people, nor even slowed them down. A group of Geocentrists is holding a conference this November in Indiana. Called "Galileo Was Wrong: The Church Was Right", it features a veritable who's who in geocentrism — not that there's a lot of them. The meeting flyer is presented above; click it to see the conference details. The conference website is full of all sorts of claims saying Geocentrism is real, science is wrong (except where it supports them; cherry-picking is something else they have in common with creationists), the Bible is the only truth, and so on.

R. Sungenis: Let me forewarn you. You will see the accusation "cherry-picking" a lot from our critics. They are claiming that we take the scientific evidence that supports our claims and we avoid the evidence that does not support it. Here is the real truth: modern scientists who don't like to be disturbed within their heliocentric palaces and they don't like it when we find established scientific facts stated by some of the top scientists in the world that support geocentrism as a viable option of cosmology. So the demagogic accusation of "cherry-picking" is a common ploy.

The truth is, we don't avoid any so-called counter evidence. In fact, not only do we state the counter evidence, we also cite modern scientists who counter the counter evidence. We have nothing to hide. All the evidence is available for people like Mr. Plait. My guess is that Mr. Plait did not read even 10% of the 1100 pages of our two volumes on geocentrism (and I can tell by the scientific claims he made in this piece). What usually happens is that a person will read a few pages and find some assertion we made about which he wants to nit-pick and subsequently use as an excuse not to read the rest of the material. But I have lost count of the times in which, having seen an objection from a qualified scientist, the objections are so lame I am forced to the conclusion that very few of them know the very physics they purport to use as a critical tool.

Mr. Plait: Well, as you might expect, I have something to say about that.

As much as I'd love to attend that meeting — in much the same way I'd love to extract my own tonsils with a spork and a pair of pliers — I don't need to. Geocentrism is so wrong, so amazingly wrong, that it falls apart with just a little thought. What follows below is a little thought.

Geocentrism is a valid frame, but not the only one

I have two things to say that might surprise you: first, geocentrism is a valid frame of reference, and second, heliocentrism is not any more or less correct.

Surprise! Of course, the details are important.

Look, I'm human: I say "The Sun rose in the east today", and not "the rotation of the Earth relative to the rest of the Universe carried me around to a geometric vantage point where the horizon as seen from my location dropped below the Sun's apparent position in space." To us, sitting here on the surface of a planet, geocentrism is a perfectly valid frame of reference. Heck, astronomers use it all the time to point our telescopes. We map the sky using a projected latitude and longitude, and we talk about things rising and setting. That's

not only natural, but a very easy way to do those sorts of things. In that case, thinking geocentrically makes sense.

However, as soon as you want to send a space probe to another planet, geocentrism becomes cumbersome. In that case, it's far easier to use the Sun as the center of the Universe and measure the rotating and revolving Earth as just another planet. The math works out better, and in fact it makes more common sense.

R. Sungenis: No, it's actually the other way around. Using the ECI frame (Earth Centered Inertial Frame) is much easier than the Solar Barycentric frame. If you don't believe me I suggest you ask the engineers who put up the GPS. We have a whole section in our book on this issue. In fact, the ECI frame is so accurate, it is used to fix the solar barycentric frame.

Mr. Plait: However, this frame of reference, called heliocentrism, still is not the best frame for everything. Astronomers who study other galaxies use a galactic coordinate system based on our Milky Way galaxy, and the Sun is just another star inside it. Call it galactocentrism, if you want, and it's just as useful as geo- or heliocentrism in its limited way. And none of those systems work if I want to know turn-by-turn directions while driving; in that case I use a carcentric system (specifically a Volvocentric one).

You use coordinate systems depending on what you need.

So really, there is no one true center to anything. I suppose you could say the Universe is polycentric, or more realistically acentric. You pick your frame of reference and you take your chances.

Relatively speaking, you're still wrong

So geocentrism is valid, but so is every other frame. This is the very basis of relativity! One of the guiding principles used by Einstein in formulating it is that there is no One True Frame. If there were, the Universe would behave very, very differently.

That's where Geocentrism trips up. Note the upper case G there; I use that to distinguish it from little-g geocentrism, which is just another frame of reference among many. Capital-G Geocentrism is the belief that geocentrism is the only frame, the real one.

Geocentrists, at this point, fall into two cases: those who use relativity to bolster their claim, and those who deny it.

Those who use relativity say that geocentrism can be right and is just as valid as heliocentrism or any other centrism. That's correct! But the problem is that using relativity by definition means that there is no One True Frame. So if you use relativity to say geocentrism can really be Geocentrism, you're wrong. You're using self-contradictory arguments.

Fail.

R. Sungenis: Not necessarily. A geocentrist appeals to Relativity not as proof or even evidence for geocentrism but merely to show modern scientists like Mr. Plait (who comes to

this question with a built in prejudice) that, by using modern scientific concepts, geocentrism can have just as much scientific respectability as heliocentrism (as opposed to some medieval superstition promoted by astrologers). Prior to Relativity, geocentrism had to fight against Newtonian physics (e.g., the idea that geocentrism was impossible because the smaller always had to revolve around the larger). Although geocentrism can answer the objection by educating the reader to the real tenets of Newtonian physics, with the advent of Relativity, the objection is again obliterated, since “smaller” and “larger” are also relative terms when we take into account the rest of the universe. All in all, the advent of Relativity makes it impossible for a heliocentrist to prove his case against geocentrism, not that a geocentrist must depend on Relativity to prove geocentrism. Indeed, the geocentrist makes his case for geocentrism on solid scientific evidence that has little or nothing to do with Relativity. Mr. Plait needs to read about that evidence before he writes another article.

Mr. Plait: The other flavor of Geocentrist, those who deny relativity wholesale, are wrong as well. Relativity is one of the most well-tested and thoroughly solid ideas in all of science for all time. It is literally tested millions of times a day in particle accelerators. We see it in every cosmological observation, every star that explodes in the sky, every time a nuclear power plant generates even an iota of energy. Heck, without relativity your GPS wouldn't work.

Relativity is so solid, in fact, that anyone who denies it outright at this point can be charitably called a kook†.

So — you guessed it — either way, Geocentrism is wrong.

R. Sungenis: First, let's distinguish between “relativity” and “Relativity.” The former is a fact of science, since, for example, two cars going down the road at the same speed appear to be motionless with respect to each other. The latter is a scientific theory about time, space and gravity that is far from a proven reality. It is just a theory. As physicist Clifford Will admitted: “General Relativity has passed every solar-system test with flying colors. Yet so have alternative theories.”

Second, Relativity may be “tested” by particle accelerators, but Relativity is not proven thereby. Mr. Plait is referring to the phenomenon that nuclear particles seem to gain in mass when they are accelerated, or they seem to defy the constraints of time. None of this proves Einstein's Relativity theory, however. It only proves that nuclear particles seem to gain in mass and seem to have time distortion. There are several other explanations why this seems to occur that have nothing to do with Einstein's theory, and they work very well. We explain them in our book. It just so happens that the science community (for reasons I will not get into here) has decided that it will only promote Einstein's version of events. That being said, in the book *Galileo Was Wrong: The Church Was Right*, we have one of the most detailed and comprehensive critiques of Einstein's Relativity theories compiled in print. In fact, one of the titles of our early books was “Galileo Was Wrong and So Was Einstein.”

What the reader will find is that Special Relativity was invented by Einstein to escape the direct evidence from the experiments performed from the early to late 1800s that were showing the Earth was standing still in space. As physicist James Coleman puts it: “...The easiest explanation was that the earth was fixed in the ether and that everything else in the

universe moved with respect to the earth and the ether....Such an idea was not considered seriously, since it would mean in effect that our earth occupied the omnipotent position in the universe, with all the other heavenly bodies paying homage by moving around it." (James A. Coleman, *Relativity for the Layman*, p. 37). Scientific historian Lincoln Barnett says it best:

"The Michelson-Morley experiment confronted scientists with an embarrassing alternative. On the one hand they could scrap the ether theory which had explained so many things about electricity, magnetism, and light. Or if they insisted on retaining the ether they had to abandon the still more venerable Copernican theory that the earth is in motion. To many physicists it seemed almost easier to believe that the earth stood still than that waves – light waves, electromagnetic waves – could exist without a medium to sustain them. It was a serious dilemma and one that split scientific thought for a quarter century. Many new hypotheses were advanced and rejected. The experiment was tried again by Morley and by others, with the same conclusion; the apparent velocity of the earth through the ether was zero" (Lincoln Barnett, *The Universe and Dr. Einstein*, p. 44).

When the last of these experiments were done, Einstein's biographer admitted: "The problem which now faced science was considerable. For there seemed to be only three alternatives. The first was that the Earth was standing still, which meant scuttling the whole Copernican theory and was unthinkable" (*Einstein: The Life and Times*, pp. 109-110). In other words, concluding that the Earth wasn't moving was a viable solution to the experimental evidence, but modern science's devotion to Copernicus and Kepler was simply not going to allow that option to be entertained, much less supported. Instead, Einstein turned physics on its head and reinvented a whole new physics just to escape a motionless earth. Ironically, when Special Relativity failed due to its internal contradictions, Einstein had to invent General Relativity to shore up the façade, and in the process he had to take back the very two foundations he had discarded in Special Relativity, namely, (a) that nothing can exceed the speed of light and (b) the existence of ether. In the end, Einstein's theories were a mass of contradictions which are covered over by obtuse mathematical equations. You can read all about it in *Galileo Was Wrong*.

Third, as regards Mr. Plait's assertion "Heck, without relativity your GPS wouldn't work," exactly the opposite is true. The GPS system is pre-wired with a correction to accommodate Relativity theory. This pre-wiring must be built in to each GPS satellite to compensate for what is known as the "Sagnac effect." In 1913, Georges Sagnac did an experiment that falsified the Relativity theory of Einstein (and perhaps this is why Einstein never refers to the Sagnac experiment in any of his papers). Sagnac showed that there was, indeed, absolute motion (whereas Einstein said all motion was relative). Turns out that Sagnac was right, since no GPS will work without the Sagnac correction programmed into the GPS computers. But all this is kept very quiet. Apparently, even Mr. Plait doesn't know it. I would suggest he read the literature of the GPS engineers. We have it documented in *Galileo Was Wrong: The Church Was Right*.

Mr. Plait: A little light warning. Those are really the strongest arguments against Geocentrism. You either have to misuse relativity, or deny it entirely, and either way you lose, GOOD DAY SIR!

R. Sungenis: Mr. Plait really needs to read our book to bring himself up to speed.

Mr. Plait: There are other arguments used, and they seem like good ones but in fact they don't work out in real life. For example, the most obvious one is that distant stars are light years away. If they circle us once per day, they must move faster than light, which is impossible! This is true even for Neptune; at its distance it would have to move at just faster than light to make one circle every 24 hours.

R. Sungenis: First of all, the stars do not move. It is the universe which revolves and thus carries the stars with it. Second, Einstein's postulate about nothing moving faster than light only applies to Special Relativity. General Relativity allows objects to travel any speed they want. Third, the Schwarzschild radius would only go to Saturn, and after that there are no additional centrifugal forces in a rotating universe. You can read all about this in GWW.

Mr. Plait: I thought about this, and wound up asking my friend the cosmologist and fellow Hive Overmind blogger Sean Carroll. He confirmed my thinking: relativity says the math has to work out if you change a frame of reference, so if you do the detailed relativistic equations to look at the motion of distant objects, it still works. Things actually can move faster than light relative to the coordinate system, it's just that things cannot move past each other with a relative speed greater than light. In the weird geocentric frame where the Universe revolves around the Earth, that is self-consistent.

In other words, the Neptune-moving-too-quickly argument sounds good, but in reality it doesn't work, and we shouldn't use it.

R. Sungenis: Ah, not so lost after all!

Mr. Plait: Uncommon sense

Sometimes, you can make things easier by simplifying. However, you can't oversimplify, because in the end it makes things harder.

Some geocentrists assert the Earth doesn't move because it's just plain obvious. The stars appear go around us, so maybe they really just do. And that makes things simple. But it doesn't. I mean, it makes calculating the times of sunrise and sunset easier, but it makes it a lot harder to send a space probe to Saturn, since according to them it's moving at 1/3 the speed of light around us. Far easier to use a heliocentric coordinate system there.

R. Sungenis: Not really. The same kinematic and dynamic proportions will be in the geocentric and the heliocentric systems. Mr. Plait apparently doesn't understand his own Relativity theory. Saturn will appear at the same speed in the geocentric system as it does in the heliocentric.

Mr. Plait: And Geocentrists have to assume that all local phenomena are caused by cosmic motion. For example, the Coriolis effect, which makes hurricanes spin different ways in the

northern and southern hemispheres, is relatively easy to explain if you assume a spheroidal rotating Earth. For a Geocentrist, you have to assume that the Universe itself is revolving around us, and affecting the weather here. Again, the math works out, but it's standing a pyramid on its tip: you have it precisely backwards. And with one poke the whole thing falls over.

R. Sungenis: If Mr. Plait is going to use metaphors ("standing a pyramid on its tip"), he'll need to show how they prove his point. In reality, a rotating universe is much more stable than a rotating and revolving earth. As the axiom says, the more moving parts in a machine, the greater the chance of it breaking down. We have a whole section on this principle in *Galileo Was Wrong: The Church Was Right*. Incidentally, here is an interesting quote from Arthur Eddington, contemporary and supporter of Einstein: "The bulge of the Earth's equator may be attributed indifferently to the Earth's rotation or to the outward pull of the centrifugal force introduced when the Earth is regarded as non-rotating" (*Space, Time and Gravitation: An Outline of the General Relativity Theory*, 1923, pp. 24, 41).

Mr. Plait: We also know earthquakes can affect the rotation of the Earth. That makes sense since they shift the mass around on the surface, and that changes how the Earth spins. To a Geocentrist, though, that earthquake affects the entire Universe.

That's simpler?

I could give example after example of this, but you get the drift.

R. Sungenis: Mr. Plait doesn't know his Relativity physics. An earthquake on earth would not affect the entire universe, and one reason is due to the effect of the Schwarzschild radius at Saturn's orbit, that I noted above. Second, geocentrism holds that disturbances within the universe are the cause of tremors on earth, not vice-versa. In fact, this principle is one reason that Misner, Thorne and Wheeler, in their landmark 1973 book, *Gravitation*, can say, "Mass there governs inertia here" (pp. 543, 546-47, 549). We can hold to such notions since in geocentrism we don't have the same problem with "action-at-a-distance" that Newton had.

Mr. Plait: Geocentrism fails fundamentally

In the end, the actual evidence is totally against the Geocentrists. The only way — the only way — they can assert their idea being factual is to rely on the Bible itself, and ignore everything else. That's a losing game, because every time a new discovery comes along, they have to ignore it. Of course, ignoring facts is clearly something they are very well-versed in.

R. Sungenis: Mr. Plait really needs to read our book before he sticks his foot in his mouth again. Modern science is replete with evidence that supports geocentrism. The few quotes I gave above from Coleman and Barnett should be enough to whet one's appetite to study more. Unfortunately, modern science is filled with agenda-driven people that continually hide and distort this evidence so that notions like geocentrism cannot gain a foothold. They have been very successful. After all, who wants to go back to the Middle Ages and have the Catholic Church rule your life?

Mr. Plait: If they want to have a faith-based conference where they show everyone that the Bible says the Universe is Geocentric, then by all means they can do that. But when they say that science backs them up — or even that scientists are suppressing The Truth (which one conference speaker is apparently claiming, given his talk title of "Geocentrism: They Know It But They're Hiding It") — well, the scales have not yet fallen from their eyes.

I understand that to them, these beliefs are deep-seated and as true to them as, say, gravity is to me. But the Universe doesn't care how strongly you believe in something. If it ain't right, it ain't right.

Geocentrism ain't right. No matter how much spin you put on it.

R. Sungenis: After reading Mr. Plait's objections it is obvious to me that he doesn't know the science that he purports to know. This is a common finding of mine. I'm just surprised to see it coming from one of the leading science magazines. The irony is that I quote very often from *Discover* magazine in my book, *Galileo Was Wrong: The Church Was Right*, to support the concept of geocentrism and to reveal the incongruities in the science that Mr. Plait puts such faith in as his authority. In the end, Mr. Plait must put more faith into his notions of modern science than I do with the Bible, for the Bible never changes, but science changes almost every day. It changed drastically when Albert Michelson and Edward Morley did their 1887 experiment that showed the Earth was standing still in space, and it was changed again when Einstein invented his obtuse Relativity theory to deny the results of Michelson-Morley.

At our conference we hope to change it once again. If Mr. Plait wants to raise any objections, he is cordially invited to our conference, free of charge.

Robert Sungenis