

Modern Geocentrism

A Case Study of Pseudoscience in Astronomy

A small group of pseudoscience practitioners called modern geocentrists still suggest that the Earth is in fact the center of the universe. An astronomer examines their ideas and uses them to suggest common properties of pseudoscience purveyors.

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Astronomy is both an ancient and a rapidly growing modern science, and there are many opportunities within astronomy to advance human knowledge. But astronomy is also a discipline that attracts practitioners of pseudoscience who question and spread misinformation about the science.

I present an analysis of one small group of astronomical pseudoscientists, the modern geocentrists. This group purports to show that Copernicus, Galileo, Einstein, and many others were in fact wrong in their conclusions and that the Earth is the center of the universe. While the impact of this group may be small, it is a perfect specimen of astronomical pseudoscience. From quote mining to math avoidance to the ever-present conspiracy theories, modern geocentrism shows us how pseudoscientists operate. By studying these and other groups and teaching about them, we can show students and the public what not to do and how to recognize pseudoscience.

What Is Modern Geocentrism?

Modern geocentrism is the idea that the heliocentric theory developed by Copernicus, Galileo, and many others is in fact wrong and the Earth is the center of the universe. It is spearheaded by a man named Robert Sungenis, who holds degrees in theology. The major work on modern geocentrism is

a book about how the Catholic Church was right to condemn Galileo called *Galileo Was Wrong, the Church Was Right* (Sungenis and Bennett 2014); this tome takes up 1,200 pages in two volumes and was developed from Sungenis's 700-page doctoral thesis written on geocentrism at Calamus International University, an unaccredited distance learning institution in the Republic of Vanuatu. There was a conference on geocentrism held in South Bend, Indiana, in November 2010; there were nine speakers and about one hundred attendees. Sungenis recently followed up with a popular-science version of his book called *Geocentrism 101* (Sungenis 2014). This year Sungenis, producer Rick Delano, and their group have finished a movie on geocentrism titled *The Principle*, about the Copernican principle, the idea that Earth is not in a special place in the universe. This is closely related to the cosmological principle, the idea that the universe is about the same everywhere and there are no special places in the universe. His

production group is currently attempting to get this movie into major theatres. Modern geocentrism obtained its fifteen minutes of fame when the notable people quoted or involved in *The Principle* found out it was a movie about pseudoscience. This included narrator (and *Star Trek: Voyager* actress) Kate Mulgrew and scientists Lawrence Krauss, Max Tegmark, George Ellis, and Michio Kaku, who were quoted in the film.

Modern geocentrism is an idea developed by a small group of highly conservative Catholics. Religion is an important part of the argument of the modern geocentrists (as may be noted in the title of the movement's primary book). The modern geocentrists divide their arguments into religious arguments and scientific arguments. The religious arguments are, in general, that many passages of the Bible suggest the Sun goes around a stationary Earth and many popes of the Catholic Church stated that the Earth is in the center of the universe. Considering that most astronomers (and thus most people) thought the Earth was the center of the universe until the seventeenth century, neither of these things is surprising.

The Basic Scientific Premises of Modern Geocentrism

The basic scientific premise of modern geocentrism is that the cosmological principle is wrong and that there is

a preferred place in the universe, the Earth. They suggest that if we throw out the cosmological principle, physics will still work, just with the Earth forming the center of the universe. As part of throwing out this principle, though, they also end up throwing out the vast majority of physics, including the standard model of cosmology, special and general relativity, quantum mechanics, and more. Their position is that Einstein and others were in fact really smart, but they were blinded by their conviction that the Earth is not the center of the universe. They propose that these scientists were materialists who didn't like the religious implications of a geocentric universe.

that physics could allow this. Sungenis begins his book *Geocentrism 101* with the statement, "Unbeknownst to almost the entire human race is the fact that no one in all of human history has ever proven the Earth moves in space" (Sungenis 2014).

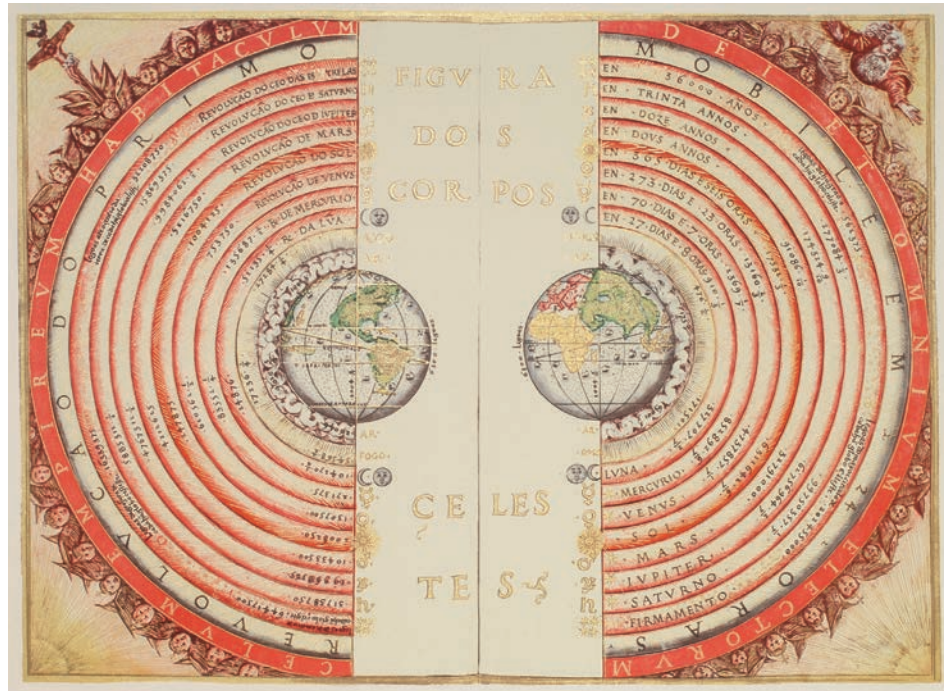
Sungenis then goes through the many different pieces of evidence that indicate the motion of the Earth and attempts to find a reason he doesn't have to believe the Earth is moving. Of course as philosopher of science Karl Popper tells us, if you don't want something to be true, you will find a way to interpret the facts to support your belief (Popper 1963), which is exactly what the geocentrists do. For ex-

ample, the Foucault pendulum changes its direction of oscillation continuously throughout the day due to the rotation of the Earth. Sungenis counters and says that he can achieve the same effect if the entire universe is rotating around the Earth.

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Einstein and others failed to see the right answer because of their innate biases and therefore pretty much all of modern physics is wrong.

The modern geocentrists propose that the reason the Sun rises and sets and the stars rise and set is that the entire universe revolves around Earth once a day. They indicate that this could be possible if the entire universe were distributed so that Earth is the center of mass of the universe, perfectly balanced. They present no observational evidence for this balance; they just try to make the point that it is conceivable

ample, the Foucault pendulum changes its direction of oscillation continuously throughout the day due to the rotation of the Earth. Sungenis counters and says that he can achieve the same effect if the entire universe is rotating around the Earth.

Sungenis spends a lot of time on the Michelson-Morley experiment, an experiment that showed no difference in light travel time whether light was going parallel or perpendicular to the motion of the Earth. This experiment was looking for evidence of the medium in which it was believed elec-

tronic waves propagated, the luminiferous aether. Since there was no difference in travel time, there was no evidence of aether. Sungenis suggests that this is evidence that the Earth is not moving. He then spends time explaining why Einstein was wrong about both the special and the general theories of relativity. There is quite a bit of conspiracy theory in these chapters, accusing Einstein, scientists behind the global positioning system (GPS), and others with hiding the truth. Sungenis also rather blithely claims that luminiferous aether exists, without giving much information on its nature. (In *Galileo Was Wrong*, he explains that aether causes gravity.) Sungenis doesn't

spend any time addressing the fact that special relativity is critical to much of modern technology, including most high-energy physics experiments.

Chapter 8 of *Geocentrism 101* begins with the statement, "Ten years after he invented the Special Theory of Relativity to answer the Michelson-Morley experiment, Einstein was forced to invent a second theory to compensate for what the first one lacked." Using words like *invent* implies that Einstein was just making things up. This sentence also betrays a deep lack of understanding of how the development of

scientific theories actually works. Sun-
genis quotes Einstein to say, “The two
sentences: ‘the Sun is at rest and the
Earth moves,’ or ‘the Sun moves and
the Earth is at rest’ would simply mean
two different conventions concerning
the two different coordinate systems”
(Sun-
genis 2014). In other words, Ein-
stein is saying the question of what is in
the center of the universe is not an in-

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teresting one. Sun-
genis, however, uses
this quote to suggest that a geocentric
universe is possible.

Chapter 9 of *Geocentrism 101* is titled, “The Big Bang: Invented to Suppress Geocentrism.” Sun-
genis presents Einstein’s “greatest blunder,” the ad-
dition of the cosmological constant to
the Einstein equation. He then claims,
“In any case, adding an arbitrary com-
ponent to make Einstein’s equation
balance with the data demonstrates
how easy it was, and still is, to create
mathematical equations that give an
aura of knowledge and certainty” (Sun-
genis 2014). Like most pseudoscientists,
Sun-
genis is uncomfortable with
math and likes to claim that math lies.
He claims next that, “If, as the statis-
tics show, 99.99% of the galaxies are
redshifted from our observation point,
Earth, it means the universe is geocen-
tric” (Sun-
genis 2014). This is quite a
leap of logic, one that Sun-
genis does
not illuminate with facts. He goes on
to briefly discuss the big bang, but only
in a very superficial way and in a way
that implies that scientists were sit-
ting around with beers and said, “Hey,
why not a big bang?” Again, Sun-
genis

has no real conception of how science
works and so he suggests scientists
make things up *ad hoc* and conspire to
hide evidence about the failings of their
theories. At the end of this chapter, the
first few verses of *Genesis* are quoted in
large text.

In Chapter 10, Sun-
genis discusses
the cosmic microwave background
(CMB; light from the big bang). He
has already indicated that the big bang
theory is fake, so it is surprising that he
makes no explanation for the origin of
the CMB; he simply uses it to prove
his arguments. Sun-
genis describes the
CMB experiment called the Cosmic
Background Explorer (COBE): “. . .
COBE showed that not only was a
significant portion of the universe’s
radiation anisotropic and inhomoge-
neous, but also that it was distributed
in well organized pockets or poles that
created a specific geometry, all the way
from the rim of the known universe to
its hub in the center. Of course CO-
BE’s results did not appear on national
news programs but it was very disturb-
ing news for the inner sanctum of the
science community” (Sun-
genis 2014).
So here we can see demonstrations of
highly nonscientific language (e.g.,
“rim of the known universe,” “hub”),
implications of conspiracy theory, and
the rare use of the phrase “inner sanc-
tum.” The implication that anisotropy
(slight temperature differences) in the
cosmic microwave background made
scientists worried is wrongheaded;
physicists were more concerned about
the initially apparent absence of anis-
tropy in the CMB than about the dis-
covery of its presence. Sun-
genis goes on
to spend a lot of time talking about the
“Axis of Evil,” an apparent alignment
in the CMB signal with the ecliptic.
While he never clearly articulates what
exactly is aligned, he suggests that this
clearly shows Earth is in the center of
the universe.

The book next looks at dark matter
and dark energy, which are again pre-
sented as *ad hoc* inventions scientists
thought up to preserve their cherished
theories. In the next chapter, Sun-
genis suggests that galaxies, quasars, and
gamma ray bursts are all arranged in
concentric shells centered on the Earth.

To support this, he shows several di-
agrams showing locations of galaxies.
This is a classic example of the use of
plots to misrepresent information. He
shows plots of galaxy distributions
in the Sloan Digital Sky Survey, and
shows how Earth is in the center. Well,
of course it is, that’s the point of ob-
servation. He does the same thing with
a plot of quasars by redshift, showing
a void in the center where Earth is.
Again, this is what you’d expect, since
quasars do not occur at low redshift.
The book closes with a quote from the
New Testament, applying it to us sci-
entists as “. . . those who suppress the
truth by their wickedness.”

**The Properties of Pseudoscience as
Shown by Modern Geocentrism**

The modern geocentrists will fre-
quently point to a controversy or
change in scientific theory as evidence
of how astronomical science is failing.
They do not understand that contro-
versy and change is a sign of healthy
science, not an indication of failure.
They also frequently ask for absolute
“proof” of scientific theories. What
this demonstrates is that they do not
understand that science does not offer
absolute truth, nor does it offer abso-
lute proof, nor can it promise to be
unchanging. If science did not change
in response to new evidence, it would
be very poor at its job.

Motivated by Religion

A large portion of the geocentrists’ time
is spent presenting religious arguments
for geocentrism. This is a common
factor among many pseudoscientists;
they start with a religious idea and then
interpret science to be in accord with
their preconceived idea. This is the
issue with the young-Earth creation-
ism movement as well. Creationists
start with the belief that the *Genesis*
account of creation is literally true
and then reject any science that might
contradict this. Ultimately, modern
geocentrists are just a special kind of
creationist, and their motivations and
methods are very similar. In fact, there
have been efforts to establish alliances
between creationists and geocentrists.

Quote Mining

Modern geocentrists spend a large amount of effort quote mining—taking a quotation out of context to show that the writer believes something he or she does not in fact believe. Both of the geocentrist writings referenced in this article are primarily lists of quotations from famous scientists. Thus on page 12 of *Geocentrism 101*, the author quotes Stephen Hawking as saying, “So which is real, the Ptolemaic or the Copernican system? Although it is not uncommon for people to say that Copernicus proved Ptolemy wrong, that is not true. As in the case of our normal view versus that of the goldfish, one can use either picture as a model of the universe, for our observations of the heavens can be explained by assuming either the earth or the sun to be at rest” (Sungenis 2014). Sungenis uses this quote to show a famous scientist admitting that Earth could be at the center of the universe. But that’s not what Hawking was saying at all; rather, he was making a point that there is no “one true model” of the universe.

Conspiracy Theory

At the first annual conference (it was the only annual conference) on geocentrism in November of 2010, the first talk was titled: “Geocentrism: They Know It But They’re Hiding It.” One of the major themes of modern geocentrism is that it is a conspiracy of physicists to hide the truth from humanity that the Earth is in the center of the universe. One hears this claim a great deal from pseudoscientists around the world. It might be a free energy machine that utility companies don’t want known, or it might be the dangers of vaccinations that medical doctors and drug companies want hidden, or it might be the “fabrication” of the Moon landings that the government wants hidden. The reason that conspiracy theory is so prevalent in pseudoscience is there is always a pressing question: If this idea is so good, why don’t physics professors, or medical doctors, or energy companies talk about it? The fig leaf used to cover this hole in the pseudoscience is con-

spiracy theory. Conspiracy theories are not only useful new garments for the emperor, they are also absolutely not demonstrable because they are secret and undocumented by definition.

Singlehandedly Overthrowing the Scientific Paradigm

The introduction to *Geocentrism 101* ends with these modest words: “The evidence you are about to see is so shocking and so revolutionary that once you grasp its significance your whole view of life will be instantly changed. Life itself, and the reason for our existence, will become crystal clear” (Sungenis 2014). Typically when scientists write a paper or a book, they purport to increase the knowledge of humanity by a little bit and to make a small contribution to the advancement of understanding. Typically when pseudoscientists write a paper or a book, they purport to completely change science as we know it. Thus an important way of telling science from pseudoscience is the level of modesty of the authors. Are they trying to stand on the shoulders of giants that have come before as Newton did? Or are they trying to overthrow science or technology or medicine as we know it?

Allergic to Math

In one of his most famous quotations, Galileo reminds us: “Philosophy is written in this grand book, the universe, which stands continually open to our gaze, but it cannot be understood unless one first learns to comprehend the language and interpret the characters in which it is written. It is written in the language of mathematics, and its characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word of it; without these, one is wandering around in a dark labyrinth” (Finocchiaro and Galileo 2008). Thus another way to tell good physical science from junk physical science is to see if there is a mathematical basis for the science. To make sense of theories in astrophysics, one must first receive some training in mathematics. Pseudoscientists

on the other hand prefer to avoid math, typically because they lack any significant training in mathematics. Pseudoscientific tracts will often have a distinct dearth of mathematical equations or discussions. In my interactions with geocentrists, I have brought up the lack of math; their response was that scientists are trying to hide the truth behind all that math and that real physics can be understood without all the obfuscation of mathematics. I will let Galileo handle that one.

Conclusion

Pseudoscience remains popular in all areas of science, and there are many people who believe in at least one type of pseudoscience. I propose that ignoring pseudoscience is ineffective and only encourages it to spread. Instead, scientists and science educators ought to seize pseudoscience as an opportunity to teach about how science works and about what is wrong with pseudoscience. Let’s not ignore pseudoscience such as modern geocentrism; rather, let’s discuss it and use it to teach and educate people about how to tell the difference between real science and junk science. ■

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