Issue #12: The size of the Universe… distant stars

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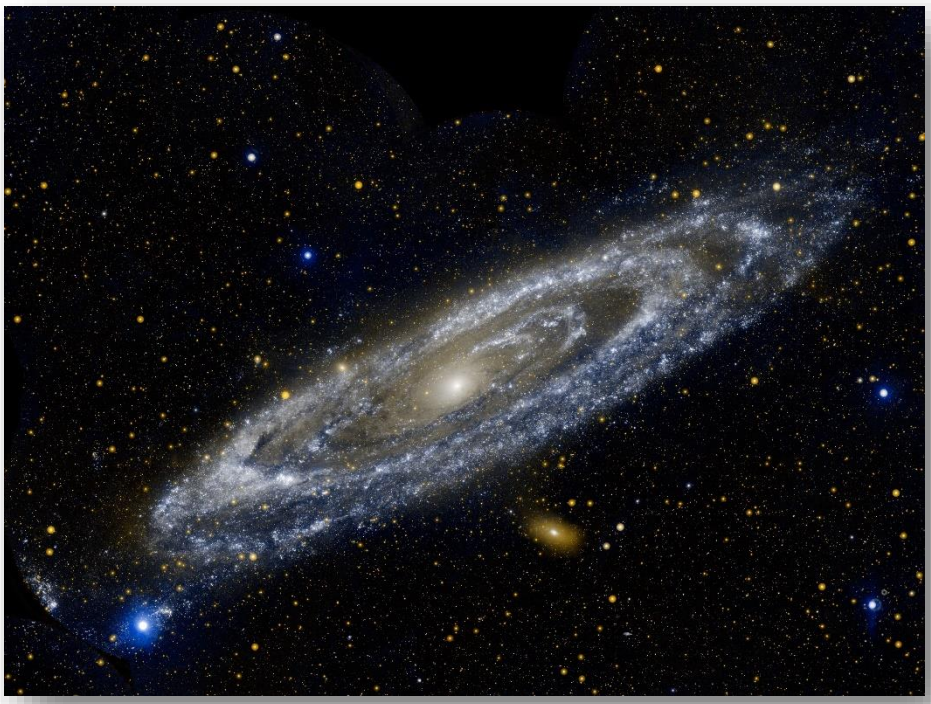

Figure 1: Andromeda Galaxy, 2.5 million lightyears away (Photo from NASA)

Assertions:

1. We observe stars and galaxies in space, using light emitted from them.
2. This light traveled at known speed to reach us.
3. Astronomers have calculated the distance to stars using several methods.
4. Distances, even within our own galaxy measured by parallax, the most accurate method, go up to 36,000 light years away. If other galaxies are of similar sizes to ours, then they are certainly much farther away.
5. Light that has traveled such distances contradicts the YEC model for the age of the universe.

Key assumptions:

a) The universe is large.

b) Physics is constant because God makes it so.

c) Scientists who have tested the assumptions were not lying or trying to be deceptive.

Discussion:

Perhaps, in many ways, this is the simplest issue to understand and could have been given first. I have chosen to hold it to this point, as it is not where my own understanding of age started at. I just didn't think through this obvious problem for a while. A common objection to deep time is "you weren't around… no one saw those millions of years". The astronomer has a different perspective. They see the past in live action. When we look at the Sun, we are watching events that took place 8 minutes before. When we look at the closest star, Alpha Centari, we are seeing light that left 4.2 years ago. When we see the Andromeda galaxy, the nearest galaxy, that light left 2.5 million years ago (**Figure 1**).

As always, we do need to think about what assumptions are involved. Perhaps, the stars aren't really so far away. Perhaps they are not as large. If the billions of stars in the Milky Way were really all within 6000 light years away, we wouldn't have nighttime. If the stars were small enough to fit the YEC models, then they wouldn't have burned so long. Perhaps, there are changes regarding light. Heino Falcke, Christian astrophysicist, Department of Astronomy, Radboud University, Nijmegen wrote this excellent easy to read article that is really helpful in understanding the issues: "*Six thousand versus 14 billion: How large and how old is the universe?*" He addresses questions like: How do we know that stars are really so far away? How do we know the speed of light has been constant? Did God make the universe appear old? I particularly appreciate the examples he gives of time dependent processes that we observe in space. I hope you will take the time to read and understand his article as it gives very clear responses to most YEC concerns. God is very consistent. I have read YEC articles who felt like scientists invented the distances and the Big Bang origin of the universe to undermine the Bible. That is far from the truth. Many astrophysicists and physicists would love to find a way of avoiding a beginning for the universe because of its obvious theological implications.

YEC explanations:

YEC have long recognized the issue that astronomical distances pose, but have not converged on any solution. There remain many proposals, each with problems, some from physics and others from theology. Spike Psarris summarizes the problem and options in this article: "*DISTANT STARLIGHT AND BIBLICAL CREATION*". John Hartnett summarizes issues and proposes his own twist here: "*A new cosmology: solution to the starlight travel time problem*". In one way or another, the proposals seem to be ways to say, "Don't look at nature too close or for solutions that are obvious or clear".

Dr. Jason Lisle has proposed an interesting option. His plan is for God to start creating stars and galaxies 43 billion years ago, continuing all the way to the recent, in order to time it such that the light all appears in our skies beginning 6000 years ago. "Anisotropic Synchrony Convention—Distant Starlight Problem | Answers in Genesis" A critique has been posted by Casper Hesp here: "*Light Matters: A Response to Jason Lisle*". Russell Humphreys, a YEC physicist, formerly at the Sandia National Laboratories proposed that time dilation ala Einstein's relativity can allow for light from galaxies to arrive at Earth within the 6,000-year timeframe, similar to Lisle. Time dilation is a valid observation in

nature and even must be accounted for in modern GPS calculations, but as his arguments seem to be ways to twist appearances rather than real solutions. Both Falcke and Hesp address this proposal.

From my perspective, imagine a scenario where the light within our galaxy, the Milky Way, could arrive within 6,000 – 10,000 years by normal relativistic physics. However, light from other galaxies would somehow arrive in this same period. If this were the case, one could discuss the idea that physics beyond our galaxy is different or that some undiscovered physics could be invoked to allow us to see the distant galaxies. However, this is not the case. Falcke points out that we can reliably measure the distance to stars in our galaxy out to 45,000 light years away and trust that it extends beyond that. It is difficult for me to imagine a process that would allow us to map our galaxy and position stars in a pattern that represents the beautiful spiral galaxy that we observe, but somehow the light reaches us by some sort of progressive or stepped change over this galaxy.

Both Hesp and Falcke give examples of short period events that have been observed by astronomers that apparently took place long before 6000 years ago. Lisle's and many other YEC proposals mean that these really didn't happen. They just appeared to happen. Many of us see that as God deceiving us. This logic extrapolated becomes like a "Matrix" model (from the movie) where we are just a simulation. Nothing is real. We trust that God is true and we can do science because our God is trustworthy. If the light reaches us by some strange twisting of equations, then is the universe really large or is it just an illusion? In my opinion, these models really make God smaller. Hollywood movies can "create" worlds that appear amazing and fascinating. Is the creator of such an illusion greater or a God who creates a universe so large that it takes light billions of years to reach us? Is the human magician great that can create the illusion of raising someone from the dead or the God who really rose from the dead? We certainly live in a unique prepared place that was designed for humans. He placed our solar system and our planet where we can observe much of the universe, giving us the mind and technology to explore His creation. I think this God is greater than one who creates it with some twist that makes the light all sort of show up here. Why create trillions of stars for humans when humans have only been aware of galaxies over the last 100 years? If Jesus comes soon, it really would seem pointless.

I realize that some would rather have God move light in some contorted way that adjusts their interpretation of Genesis 1. For me, the scripture tells us of the long periods, though sometimes in ways that require us to look carefully at the words and what they meant to the original readers. God rules from everlasting to everlasting and His magnificence is further revealed by an ancient universe of enormous size.

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