

Traveling at the speed of light can the end of the universe be traversed in 6,000 years?

January is always a good month to look at the stars and marvel at what God has created; better, it is always good to look at God's creation on a cold and clear winter night and marvel at what we can see but cannot touch. A few nights ago (the 29th)¹ from about 33 degrees north latitude looking straight up at almost a full moon (it was about 9 p.m.) I noticed Jupiter straight east up about 30 degrees and shining as bright as anything in the sky. To the southeast and a little higher I could plainly see Procyon, Betelgeuse, Orion's Belt Stars, Rigel, Sirius, and higher up Aldebaran. Notice I said plainly see.

This is a literal comment and we all know there is more.

Therefore, this short and truncated paper will discuss the speed of light, light years, a journey to the edge of the cosmos, and a few quick comments on applying a literal approach to the pre-scientific idea of a three level universe.

Only 6,000 years old?

It is generally understood by creationists the world is "a little over 6,000 years old" and it is not uncommon to hear in fundamental churches the words "heaven, earth, and hell." The Christian Creation Association claims the Bible is a book of history and not "the billions of years required for the evolutionary timeline."²

While attending a Small Group Bible Study in the fall of 2010, the "Truth Project" had referenced a book and a DVD, with the same title, called *The Privileged Planet*.³ These two references stretch the 6,000 years into billions and it is hoped this report will take the grave cloths off of the pre-scientific community and perhaps influence more people in the post-scientific world to believe in the history of science, the origin of the universe, and will give a billion credits to our awesome God who built it.

Speed, speed of light, and light years

Back in the early 60's when I was flying on active duty in the Air Force I got my first flight in a Northrop T-38 which at this time was a brand new super sonic jet training airplane. We made an after-burner climb right after take off and flew to 41,000 in just about four minutes. This was pretty fast in those days (it still is, by the way) and going up at about two miles a minute is exhilarating. For comparison figures the space shuttle (STS-121) in July of 2006⁴ ascended through this same altitude in just over one minute - going through 150,000 feet in a

¹ Beckstrom, G. (2015). Exploring the night sky: What's up in tonight's sky. Retrieved from <http://www.beckstromobservatory.com/whats-up-in-tonights-sky/>

² Christian Creation Association. (2014). *Does Creation Matter?* Retrieved from <http://christiancreationassociation.com/Does%20Creation%20Matter.htm>

³ Gonzalez, G., & Richards, J. W. (2004). *The Privileged Planet*. Washington, DC: Regnery Publishing.

⁴ Space Shuttle Ascent: Altitude vs. Time. (2015). NASA: *Exploring Space Through Math*. Retrieved from http://www.nasa.gov/pdf/585035main_ALG_ST_SSA-Altitude.pdf

little over two minutes. Now, lets talk about the speed of light and just how fast it really is before we launch for edge of space.

"Light is the fastest-moving stuff in the universe."⁵ It travels at 186,000 miles per second which is 670,616,629 miles per hour. "If you could travel at the speed of light, you would be able to circle the Earth's equator about 7.5 times in just one second!" At this speed the time from the earth to the moon is about 1.3 seconds. The time it takes light to get here from the sun, going a distance of 93 million miles, takes eight minutes.

So, what is a light-year? A *light-year* is how astronomers measure distance in space. It is defined as how far a beam of light travels in one year. This distance is about 6 trillion miles (5.88 but depends on who does the math). Of course, the next measurement is in *astronomical unit* or AU but that explanation and scaling of the unit is beyond the scope of this paper.

Journey to the edge of space

Edwin Hubble between 1921 and 1929 from the top of Mt. Wilson laboratory observed the stars and implied we were in a vast cosmic sea and that it had a beginning; noting at this time, scientists thought the Milky Way was the entire universe. Let us assume a trip to the end of the known universe using the time of an earth bound clock and traveling at the speed of light which, again, is 186,000 miles a second. From the Mt. Wilson laboratory we will travel from earth to the outer limits of the cosmos.⁶

<u>Depart Earth</u>	<u>January 1st</u>
Past the moon	1.3 seconds
Orbit of Mars	4.5 minutes
Jupiter	
Saturn and Neptune	
Pluto	5.5 minutes - 3.5 billion miles - outer limits of our solar system (still January 1st)
Interstellar space - Sun disappears	
One year	
Two years - the stars do not seem to move	
Three years	

⁵ McClure, B. (2014). *How far is a light year?* Retrieved from <http://earthsky.org/astronomy-essentials/how-far-is-a-light-year>

⁶ Illustr Media (Producer). (MMIV). "Journey to the Edge of the Universe" in *The Privileged Planet* (DVD). Available from www.illustramedia.com

Four years

April 19th of fifth year Alpha Centuria system and nearest star to our sun.
25 trillion miles

Journey barely begun

10 light years from our sun - stars appear to converge

100 light years - gas, dust, and stars from Milky Way surround us

1,000 light years

100,000 light years - entire shape of Milky Way is recognizable

Five million light years - Milky Way is in part of cluster known as Local Group
and is 3 million light years across.

50 million light years - Can see 2000 galaxies

A Billion light years

Five Billion light years

Ten Billion light years

Finally, 14 Billion light years - able to ascertain large scale structures in entire universe, at least 100 billion galaxies stretch across the cosmos. However, this edge is expanding because the universe has grown in this billions of years...and it gets bigger everyday.⁷

Closing comments

Bottom line is not 6,000 years or 14 billion light years. The expansion number of 14 billion has been projected to be "just over 46 billion light years!" The projected number is due to the expansion of the cosmos during the 14 billion years. Another way of looking at the expansion is to reverse course at the end of the trip and return to earth noting the expanded time and distance to arrive back here on earth would certainly be longer than the initial time distance of 14 billion light years on the first leg.

Bottom line is maybe 6,000 light years is not enough time to travel to the end of our cosmos. Maybe it took God a few more years to create the world; indeed, maybe more expansion is still in progress?

⁷ Crockett, C. (2013). *What is a light-year?* Retrieved from <http://earthsky.org/space/what-is-a-light-year>

Last bottom line is the intrigue for an expansion of the textbook cosmic issues of life in:

- * Epistemological Hindrance - p. 332
- * The Pale Blue Dot in Relief - p. 81
- * A Universe Fine-Tuned for Life and Discovery - p. 195
- * The Copernican Principle - p. 247

Later...perhaps not before life on the Earth has reverted to its simpler forms or has even become extinct, a flora and a fauna will appear, similar in kind to those which now delight the human eye, and Venus will then indeed be the "heavenly Queen" of Babylonian fame, not because of her radiant lustre [sic] alone, but as the dwelling-place of the highest beings in the Solar System.

Svante Arrhenius, 1918 (p. 81).