



Are Our Units Large Enough to be Used in Astronomy?

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Abstract

Purpose of this work was just to raise some questions regarding the units which we have been using in astrophysics. Authors presented the idea to explore some new and relatively large units to be used in astrophysics and for that they used some references from religion.

Explanation

In physics, we have different units for measuring various variables. There are different units to measure a same variable but selection of a unit to measure length or size depends on what we want to measure. Distance, between cities or even between different areas within a city, usually writes in Miles (mi) or Kilometers (km) because if we write those distances in cm or mm the number will be huge. Furthermore, presentation of size of electron or neutron in mi or Kilometers will be highly inappropriate. That is why, we use the unit which can keep number readable and understandable.

If we talk about space or universe, we have astrophysics to study it. Astronomers are discovering galaxy after galaxy and going deeper and deeper into the space. They are calculating the sizes of the galaxies distances between the galaxies and even the number of stars and sizes of different stars and planets inside the galaxies. As of now, astronomers have discovered that the farthest object is about 13.1 billion light years away from us. Hence, universe is approximately 13.8 billion years old [1]. Estimated number of galaxies inside the observable universe is approximately 100 billion, each containing 100 billion stars and probably a similar number of planets [2].

When we measure different variables inside the universe, we use the units as we have like millions, billions, astronomical unit (AU) or parsec (pc). But even after having the large units, numbers are so large to grape or imagine by a human mind. So, it gives us feel that our units are small to present such huge numbers. These numbers will become bigger and bigger as we will have more advance technology and more powerful telescopes to see deeper into the space.

It gives feel to have some different unit system for space to measure or to count. Through that human can imagine and understand that how big our universe is. Similarly, astronomers use speed of light for space travelling. But problem will remain even if we start travelling with speed of light. With speed of light, it will take approximately 100,000 light years (30 kpc) to cross Milky Way and 2.5 million light years (772 kpc) to reach Andromeda galaxy (M31) which is nearest galaxy to the earth apart from smaller companion galaxies [3]. It seems that travelling with speed of light will not really helpful when we have to cover thousands and millions of light years.

If we study the literature of Islam (Quran and Hadith) to seek some clues regarding space and space travelling, we can find some verses and hadiths of Holy prophet (Peace be upon him). Allah (SWT) says in Quran that at the day of judgement one day will be of 50,000 years according to our yearly system (The Qur'an, Al-Maarij 70.4). Furthermore, in Quran's chapter 55, Allah says "O assembly of Jinn and men! If you can pass beyond the zones of the sky and the earth, than pass! Not without authority (knowledge) shall you be able to pass!" (The Qur'an, Al-Rahman 55.33). Some of the events of the prophets' lives reveal us that angels reached to them at very narrow passage of time. Quran states about Maryam (Mary), "She placed a screen (to screen herself) from them; then We sent to her Our Ruh [angel Jibrael (Gabriel)] and he appeared before her in the form of a man in all respects" (The Qur'an, Al-Maryam 19.17). As mentioned above that at judgement day, one day will be equal to 50,000 years of us. Hence, count of 365 days will be equal to 18.25 million years on planet earth. From all the references from religious literature bring us to light that the way to count the time or speed at with angels or jinn travel is far more different than what we use to use. But we do not have that knowledge and by now we are not able to study those subjects which can travel into the space even faster than light.

Scientists recently discovered habitable exoplanet system which is just 12 parsecs (39 light years) from earth [4]. Although, this newly discovered planets are very near compared to previous discoveries, but point remains the same that can we manage to travel that far with our existing technology. Hence, the concluding point is that first we need to know the travelling speed with which we need to travel within the universe or even within our galaxy. It is mentioned many times in Quran or Bible that angles or even jinn travel from skies to earth and it is quite obvious that the speed at which they can travel is far greater than speed of light. Now, the question is "Do we really need to know the speed with which Angels or Jinn can travel?" if we will be able to find their mysterious speed of travelling then we will have some new units apart from parsec or light year, the unit may be called as "Angel/sec". But for this we need to think differently, something out of the box.

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