

Cosmological signs in Quran: Twelve planets and the ultimate fate of the universe

Mehmet Kemal Irmak

Department of Medical Histology and Embryology,
Gulhane Military Medical Academy
Etlik, Ankara, Turkey, 06010
Email: irmakmk@gmail.com

Abstract: The Quran contains many scientific signs about Astronomy and Cosmology. For example, the verse 12:4 indicates that there exist twelve planets around the Sun. The new order of the planets may therefore be as Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Haumea, Makemake and Eris. A number of verses indicate that with respect to the Earth, there exist seven cosmic layers in the universe; first of which is the solar system. The remaining 6 layers seem to be as follows: Milky Way Galaxy, The Local Group, Local Supercluster, Virgo Supercluster, Laniakea Supercluster and Highest layer: remaining parts of the universe. The verse 51:47 indicates that we live in an expanding universe and all the matter, energy and space in the universe was once squeezed into a small volume. Other verses indicate that ultimate fate of the universe seems to be Big Rip (rupture) in which the matter of the universe, from galaxies and stars to atoms and subatomic particles would be progressively torn apart by the accelerated expansion of the universe. This separation, a "ripping" of stars, planets and atoms would leave the universe entirely devoid of structure but the Ether. With the conception that the Ether (superfluid or plasma in nature) is the primary form of all substance, it could also form the basis of the permanent element in the Eternal World.

Keywords: cosmic layers, big rip, ether, planets

Abstrak: Al-Qur'an memuat banyak tanda-tanda ilmiah tentang Astronomi dan Kosmologi. Misalnya, ayat 12:4 menunjukkan bahwa terdapat dua belas planet yang mengelilingi Matahari. Oleh karena itu, tatanan planet baru mungkin adalah Merkurius, Venus, Bumi, Mars, Jupiter, Saturnus, Uranus, Neptunus, Pluto, Haumea, Makemake, dan Eris. Sejumlah ayat menunjukkan bahwa sehubungan dengan Bumi, terdapat tujuh lapisan kosmik di alam semesta; yang pertama adalah tata surya. Enam lapisan sisanya tampak sebagai berikut: Galaksi Bima Sakti, Grup Lokal, Supergugus Lokal, Supergugus Virgo, Supergugus Laniakea, dan Lapisan Tertinggi: sisa bagian alam semesta. Ayat 51:47 menunjukkan bahwa kita hidup di alam semesta yang mengembang dan semua materi, energi, dan ruang di alam semesta pernah terhimpit menjadi volume yang kecil. Ayat-ayat lain menunjukkan bahwa nasib akhir alam semesta tampaknya adalah *Big Rip* (pecahnya) yang mana materi alam semesta, mulai dari galaksi dan bintang hingga atom dan partikel subatom akan semakin terkoyak akibat percepatan perluasan alam semesta. Pemisahan ini, sebuah "perobekan" bintang-bintang, planet-planet dan atom-atom akan meninggalkan alam semesta tanpa struktur kecuali Eter. Dengan konsep bahwa Eter (superfluida atau plasma di alam) adalah bentuk utama dari semua zat, maka Eter juga bisa menjadi dasar elemen permanen di Dunia Abadi.

Kata Kunci: eter, lapisan kosmik, planet, robekan besar

Introduction

The Quran is the central religious text of Islam, believed by Muslims to be a revelation from God. It is organized in 114 chapters, which consist of verses. Muslims believe that the Quran was orally revealed by God to the final prophet Muhammad, through the archangel Gabriel, incrementally over a period of some 23 years, beginning in the month of Ramadan, when Muhammad was 40; and concluding in 632, the year of his death. Muslims regard the Quran as Muhammad's most important miracle; a proof of his prophethood and the culmination of a series of divine messages starting with those revealed to Adam, including the Torah, the Psalms and the Gospel. The Quran is thought by Muslims to be the literal word of God. Muhammad did not write it as he did not know how to write. Shortly after the prophet's death, the Quran was compiled by the companions, who had written down or memorized parts of it and it was established as a standard version, which is considered the archetype of the Quran known today. The Quran contains many scientific signs in Astronomy and Cosmology (Irmak, 2017). There are more than one thousand verses in the Quran about Astronomy, Cosmology and natural sciences. In this

study, it has been focused on the number of planets in the Solar System, cosmic layers in the universe and the ultimate fate of the expanding universe.

Twelve Planets around the Sun

The verse 12:4 indicates that there exist twelve planets around the Sun. The verse states 'Joseph said to his father, "O my father, I saw (in a dream) eleven planets, and the sun, and the moon; I saw them bowing down to me". In the verse, Prophet Joseph mentioned 11 planets. He had 11 brothers, totally they were 12 siblings. This verse therefore points to the presence of 12 planets.

The Solar System comprises the Sun and the planetary system that orbits it. According to the classification of the International Astronomical Union (IAU), of those objects that orbit the Sun, the largest eight are the planets, with the remainder being significantly smaller objects, such as dwarf planets and small Solar System bodies such as comets and asteroids. The definition of planet in 2006 by the International Astronomical Union (IAU) states that: Planet is a body that circles the sun without being some other object's satellite, is large enough to be rounded by its own gravity and has "cleared its neighborhood" of most other orbiting bodies. The four smaller inner planets, Mercury, Venus, Earth and Mars, are terrestrial planets, being primarily composed of rock and metal. The four outer planets are giant planets, being substantially more massive than the terrestrials. The two largest, Jupiter and Saturn, are gas giants, being composed mainly of hydrogen and helium; the two outermost planets, Uranus and Neptune, are ice giants, being composed largely of substances with relatively high melting points such as water, ammonia and methane. All planets have almost circular orbits that lie within a nearly flat disc called the ecliptic.

If an object fulfils the first and second criteria - e.g. it orbits the sun and is spherical, but doesn't dominate the space around it then it's a "Dwarf Planet". There are currently five officially classified dwarf planets in our solar system. They are Ceres, Pluto, Haumea, Makemake and Eris. Ceres is located inside the asteroid belt between the orbits of Mars and Jupiter, while the other dwarf planets are located in the outer solar system. The largest dwarf planet is either Pluto or Eris, followed by Makemake, Haumea and Ceres being the smallest dwarf planet. The order of the dwarf planets from closest to the Sun outwards is Ceres, Pluto, Haumea, Makemake and Eris is the furthest from the Sun.

Ceres: The dwarf planet Ceres is also the largest asteroid in the solar system. Ceres is the earliest-known and smallest of the current category of dwarf planets. Ceres is located inside the asteroid belt between the orbits of Mars and Jupiter. It is only 950 km in diameter. In fact, Ceres is so small that it is classified as both a dwarf planet and an asteroid, and is often named in scientific literature as one of the largest asteroids in the solar system.

Pluto: Pluto is the most well-known of the dwarf planets. Since its discovery in 1930 and until 2006, it had been classified as the ninth planet from the sun. Pluto's orbit was so erratic, however, that at times it was closer to the sun than the eighth planet, Neptune. In 2006, with the discovery of several other rocky bodies similar in size or larger than Pluto, the IAU decided to re-classify Pluto as a dwarf planet. Despite its small size Pluto's gravity is enough to capture five moons of its own.

Haumea and Makemake: Haumea and Makemake are the most recently named dwarf planets in the solar system. Haumea is unique because of its ellipsoid shape, only just meeting the hydrostatic equilibrium criteria for dwarf planet status. The elongated shape of the dwarf planet is due to its rapid rotational spin, not a lack of mass, which is about one-third that of Pluto. The cigar-shaped dwarf planet rotates on its axis every four hours, likely a result of a collision. Haumea hosts more than one moon. Makemake is also unique among the known dwarf planets, being the only one of those discovered so far to lack a satellite.

Eris: When it was first discovered, Eris was thought to be the largest of the dwarf planets, with a mass 27 percent larger than that of Pluto and a diameter of approximately 2,300 km. The orbit of Eris is very erratic, crossing that of Pluto and nearly intersecting the orbit of Neptune, but is still more than three times larger than Pluto's orbit. It takes 557 years for Eris to orbit the sun.

The enormity of the impact of this distinction between a planet and a dwarf planet had an immediate victim. With the new definition, Pluto, which from its discovery in 1930 up until that year was considered the ninth planet in the Solar System, would now be stripped of that position and become a dwarf planet. The main problem for dwarf planets, besides their small size, is that they share their space with lots of other objects in their orbits. In comparison, the orbits of the remaining eight planets do not contain other celestial bodies, and they never cross each other's path. The classification of dwarf planet was not without its share of controversy. Some planetary scientists objected to the third criterion of the planet definition because they believed a planet, and therefore a dwarf planet, should be judged based on its intrinsic qualities and not what is or isn't in its neighborhood (orbital path). A group of scientists therefore believe that dwarf planets should be categorized as a "true planet" in the same way that gas giants (e.g. Jupiter) and terrestrial planets (e.g. Earth) are considered "planets".

The verse points to the presence of 12 planets. It seems that so called dwarf planets are not separate entities from a true planet. The question may be settled by including the four dwarf planets (Pluto, Haumea, Makemake and Eris) into the planetary system as true planets. Asteroid Ceres should also be excluded out of the planetary system. So, here's the new order of the twelve planets, starting nearest the sun and working outward through the solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Haumea, Makemake and Eris. As a different and easy classification: four inner terrestrial planets (Mercury, Venus, Earth, Mars); four middle giant planets (Jupiter, Saturn, Uranus, Neptune); and four outer Plutoid planets (Pluto, Haumea, Makemake and Eris).

Solar System as the First Cosmic Layer of Seven Layers

Following verses indicate that there exit seven cosmic layers (heavens) in the universe: God created for you everything on earth, then turned to the heaven, and made them seven heavens (2:29); Then He completed them as seven heavens in two days, and He revealed to each heaven its functions (41:12); God created seven heavens, and the same number of earth. His commands descend through them (65:12); God created seven heavens in harmony (67:3); Don't you see that God created seven heavens in layers? (71:15); We have built above you seven strong (heavens) (78:12).

The verse 'We have adorned the nearest heaven with the beauty of the planets' (37:6) indicates that the Solar System (The Sun and its planets) is the first cosmic layer with respect to the Earth. The Solar System is located in the Milky Way, a spiral galaxy with a diameter of about 100,000 light-years containing about 200 billion stars. Almost all the individual naked-eye stars in the entire sky are part of the Milky Way. The Sun lies between 27,000 light-years from the Galactic Centre, and its speed within the Milky Way is about 220 km/s, so that it completes one revolution every 240 million years. This revolution is known as the Solar System's galactic year.

Along with some 50 other galaxies, the Milky Way and its immediate surroundings make up a cluster known as the Local Group. Two smaller galaxies and a number of dwarf galaxies in the Local Group orbit the Milky Way. The smallest dwarf galaxies of the Milky Way are only 500 light-years in diameter. The Local Group (a cluster of gravitationally bound galaxies containing, among others, the Milky Way and the Andromeda Galaxy) is part of a supercluster called the Local Supercluster, which is a component of the Virgo Supercluster. In the Virgo Supercluster, at least 100 galaxy groups and clusters are located within its massive 150 million light-year diameter. And a 2014 study indicates that the Virgo Supercluster is only a part of a greater supercluster, Laniakea. Superclusters are groupings of galaxies on very large scales that measure in the hundreds of millions of light years in diameter. In between these superclusters are large stretches of open space where space probes would encounter very little in the way of galaxies or matter. The Milky Way, along with everything else in the Universe, is moving through space. The Earth moves around the Sun, the Sun around the Milky Way, and the Milky Way as part of the Local Group is moving at approximately 630 km per second with respect to the local co-moving frame of reference.

Verses indicate that Solar System forms the first layer (37-6), and remaining 6 cosmic layers seem to be as follows: 2. Milky Way galaxy, 3. The Local Group, 4. Local Supercluster, 5. Virgo Supercluster, 6. Laniakea Supercluster, 7. Highest layer: remaining parts of the universe.

Cosmic Doomsday by a Big Rip

We live in a finite expanding universe which has not existed forever, and all the matter, energy and space in the universe was once squeezed into a small volume, which erupted in an "explosion" known as the Big Bang. The verse 51:47 (We constructed the universe with power, and We are expanding it) points to this expanding universe fact.

As for the ultimate fate of the universe, a cosmological hypothesis called the Big Rip was proposed, in which the matter of the universe, from galaxies and stars to atoms and subatomic particles, is progressively torn apart by the accelerated expansion of the universe [2]. Measurements indicate that the expansion of the universe has been accelerating since the universe was about half its present age. To explain this acceleration, it requires that much of the energy in the universe consists of a component with large negative pressure, called "dark energy". If the universe has a large amount of dark energy (as recent findings suggest it may well have), then the expansion of the universe could theoretically continue forever. If the acceleration caused by dark energy increases without limit, the dark energy eventually will become so strong that it completely overwhelms the effects of the gravitational, electromagnetic and weak nuclear forces. Ultimately galaxy clusters, stars, planets, atoms, nuclei, and matter itself will be torn apart by the ever-increasing expansion in a so-called Big Rip (Caldwell et al., 2003).

A number of verses indicate that ultimate fate of the universe would be Big Rip (rupture). This scenario is foretold with different descriptions in the Quran as the events that are to occur on the Doomsday. In certain verses, it is constantly repeated that all the matter will be torn apart and broken into very tiny pieces in doomsday: When the sky is ruptured (84 :1); When the sky is opened (77:9); They ask you about the mountains, say: My Lord will break them into scattered dust (20:105); On that day, the earth and the mountains will be violently shaken, and the mountains will be turned into heaps of moving sand (73:14). In this scenario, the galaxies would first be separated from each other. Then stars and the Solar System would be gravitationally unbound. In the last minutes, planets would be torn apart, and an instant before the end, atoms and their nuclei would be broken apart. This separation, a "ripping" of stars, planets and atoms, leaves the universe entirely devoid of structure but the Ether (Irmak, 2013). The verses therefore indicate that ultimate fate of the universe seems to be a Doomsday by Big Rip.

The Period after the Doomsday

The verses in Quran emphasize that while the universe is eventually going to end, God will not allow things of value to simply disappear: On the Day We fold the heaven, like the folding of written papers. Just as We initiated the first creation, We will repeat it - a promise binding on Us. We will perform it (21:104); Who originated the creation, then brings it back again, and it is easier for Him (30:27).

A scenario is presented here for the events that will occur after Doomsday in the light of the facts and clues foretold by the Quran. What will happen after the Doomsday? Matter is dispersed, but it's present as Ether, just as before the Big Bang. The Ether is a universal connecting medium, filling all space to the furthest limits, penetrating the interstices of the atoms without a break in its continuity (Irmak, 2013). The universe seems to be built up from this superfluid or plasma which condensed billions of years ago, seeding the galaxies we observe today (Lincoln & Wasser, 2013). The verse 'God created the heavens and the earth in six days while His Throne was upon the water' (11:7) may point to superfluid or plasma nature of the Ether. With the conception that the Ether is the primary form of all substance, that all other forms of matter are merely differentiations of it, then it may also form the basis of the permanent element of the Eternal World (Unal, 2006; Irmak, 2012).

Conclusion

In the present study, a number of the Quran verses about Astronomy and Cosmology were evaluated according to the contemporary scientific knowledge. It has been suggested that there are 12 planets around the Sun; there exist seven cosmic layers in the universe with respect to the Earth; and all the matter will be torn apart and broken into the Ether ultimately. These suggestions however need further investigations and evaluations.

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