“There’s No Place Like Home”

Introduction. “We are just one out of millions of planets where life is likely to exist.” You will hear this claim more and more. Do not believe it. Even the best planets found so far do not come close to reaching the minimum requirements, and the list is longer than you think.

A powerful motive drives the ongoing, costly search for life on other worlds. If life is unique to the earth, then that makes our planet special and implies a Creator. But this thought repels unregenerate minds. If life arose naturally as they believe, then we should expect to find life on many other planets throughout the universe.

Hopes of finding life within our own solar system have been dashed so far, but that has not diminished the zeal. In 2009 NASA launched the Kepler telescope to monitor 145,000 stars for evidence of orbiting planets. The results are astounding: over 3,500 candidates were identified in Kepler’s small survey. Yet Kepler was able to detect just a small fraction of the planets orbiting its target stars. Correcting for its limited view and extending the result to other stars, researchers can estimate that our Milky Way galaxy alone may host as many as 100 billion planets.

Despite the hype, the survey is verifying what our solar system has already shown us — that there’s no place like home. The earth has innumerable amazing properties, not least of which are its two “great lights” — the sun and moon — which uniquely display the Creator’s perfect provision for life on earth.

I. Just Right For Life

A. Just the right distance.

1. Noting the necessity of liquid water for life, astronomers have defined habitable zones around other stars. The habitable zone is the narrow region of space around a star where liquid water is possible on a planetary surface. If a planet orbits closer than the habitable zone, then the planet will be too hot for liquid water. But if a planet is outside the habitable zone, any water present will freeze.
2. This is true of the solar system. Venus is too close to the sun and hence too hot for liquid water. Mars is too far from the sun, so its water is mostly frozen. But the earth is in the middle of the sun’s habitable zone. A star’s habitable zone is very narrow, and few planets thus far discovered are located within their respective stars’ habitable zones.
3. The evolutionary reasoning is that life probably develops wherever liquid water exists. But secular astronomers have set the bar quite low. They are not actually looking for life itself but the places where life could theoretically survive. Even that bare minimum has proven very hard to find. Biblical creationists have a much higher bar. God’s word refers to animals, not plants or microorganisms, as “living things” (Genesis 1:28; 6:19; 8:1, 17; Leviticus 11:10; 20:25; Job 12:10; Psalm 145:16). And the basic needs of animal life are almost endless.

B. Just the right mass.

1. But being in the habitable zone is not enough. The earth’s moon is in the right zone but is sterile. The problem is that the moon has too little mass (and

hence too little gravity) to keep any significant atmosphere. Liquid water cannot exist in the vacuum of space, as on the lunar surface.

2. But if a planet is too massive, it retains the wrong kind of atmosphere, such as the poisonous, lighter gases on Jupiter. For a planet or moon to support life, it must have just the right mass.

C. Just the right atmosphere.
   1. Bulking up with nitrogen.
      a) As long as a planet is the right size, it could retain an atmosphere with all the right ingredients needed for life. Just one problem. Only one known planet does. Not just the right elements are needed but the right combination of elements.
      b) We tend to take for granted the healthfulness of the air around us as long as we get the oxygen we need. We do not pay much attention to the other elements. Yet the bulk of the atmosphere consists of nitrogen (78%), and the remaining 1% is a mixture of trace materials. What is all that nitrogen doing in the atmosphere?
      c) Nitrogen is chemically inert, which means that it rarely interacts with anything. So the majority of the earth's atmosphere does not do anything except provide bulk and take up space. This is ideal, because it provides the proper amount of air pressure to support life without interfering with basic life processes.
      d) For example, just the simple exchange of gases in breathing requires a certain amount of air pressure. If all that inert nitrogen were not present, breathing would be difficult.
   2. Avoiding the greenhouse effect.
      a) The amount of oxygen is important in another way. Too much of other types of gases would turn our planet into an unbearable hothouse.
      b) No other known planets have atmospheres that are like ours. The most common gases on the other planets include carbon dioxide (CO_2), water vapor (H_2O), ozone (O_3), and methane (CH_4). We call these "greenhouse gases" because they have the same effect as windowpanes in a greenhouse.
      c) As sunlight passes through the panes, the interior heats up, but the glass prevents the heat from escaping. These types of gases have the same effect on a planet. Sunlight heats up the surface, but the gases trap the heat in the lower atmosphere so that it cannot escape. This explains why the surface of Venus is very hot; its thick atmosphere consists almost entirely of carbon dioxide.
   3. Avoiding radical temperature swings.
      a) The earth's atmosphere is very different from any other planet's. The small amount of greenhouse gases keep the temperatures from getting too cold at night when heat escapes. It also blocks much of the infrared radiation coming from the sun, preventing the earth from heating up too quickly during the day. If the earth did not have any greenhouse gases, then the temperature would fluctuate well over 100° F (55.5° C) every day.

b) Scientists understand this danger very well, so they have begun looking for extrasolar planets that might have atmospheres similar to ours. They know that no other atmosphere will work. No luck, so far. It seems we live on a unique planet, specially created to be inhabited.

II. Not Just Another Star

A. Our sun is just a tiny yellow star in a vast collection that could support life. You will hear this more and more. Do not believe it. The minimum requirement of a life-supporting star is missing from all the other stars. Our God-given sun appears to be unique.

B. Appearing bright from our perspective on earth, the sun obviously has a special status for us. But its brightness is impressive only because it lies so close compared to the stars. Given everything we now know about the brightness of other stars, it is fashionable today to call the sun a star, even an average star. But is that really the case?

C. While the sun has many characteristics similar to stars, the Bible never refers to it as a star (Genesis 1:14-18). Astronomers have spent some time looking for stars similar to the sun, because such stars might be conducive to sustaining life on any planets that orbit them. Astronomers have found a few solar twins that have the same temperature, size, mass, and brightness as the sun, but nearly all of them are variable. That is, they vary in brightness.

D. Other stars (which are otherwise similar to the sun) typically vary in brightness by a few percent, with some varying far more. This would be disastrous for life on a planet orbiting such a star just from the standpoint of large temperature variations. Just one percent variation in the sun would result in an average temperature shift of 2°F (1°C) on earth. This may not sound like much, but this is change in the average temperature — local and seasonal changes likely would be far higher and more disruptive to life.

E. But there is more. The variation appears to be related to magnetic activity, which can harm life. On earth we are familiar with the sun's magnetic field because it is intimately involved with sunspots. Every 11 years the number of spots and magnetic activity increase. During sunspot maximum the sun frequently produces energetic flares that bathe the earth in an extra dose of particle radiation that can wreak havoc on earth and damage cells in living organisms. We can only imagine how destructive the radiation would be on planets orbiting other stars.

F. By God's gracious design, the earth has a protective magnetic field that prevents the sun's flares from disrupting life. The particles racing from the sun interact with the magnetic field, which deflects most of the particles. Yet we are periodically reminded about such imminent danger when the flares overload the ability of the earth's magnetic field to protect us. Astronauts on the Space Station must enter protected sections of the station after a solar flare.

G. Not all planets have strong enough magnetic fields to protect living organisms on their surfaces. Even on planets that do, the situation would be dire if the star's magnetic activity were far higher than the sun's. The much more frequent and far more powerful flares probably would compromise any reasonable magnetic field

that a planet would have. Because this particle radiation would be harmful to life, even secular astronomers recognize that variable stars probably cannot support living animals.

H. Life requires a stable sun at all times, and that is just what God gave us, but secular astronomers have no reason to believe this has always been the case. This stability throughout life's history on earth is easy to explain if the sun and earth are young as we creationists know, but it would not work if the sun or any star system is billions of years old.

III. A Perfect Partner

A. Our moon is not just a pretty dot in the night sky — it helps make life possible.
   1. You have probably never heard this example in discussions about the basic requirements of extra terrestrial life.
   2. The more we learn about our solar system, the more we recognize our moon's uniqueness. The moon is the earth's only natural satellite. Mercury and Venus have no satellites, and Mars has only two very small moons. The gas giant planets — Jupiter, Saturn, Uranus, and Neptune — have many satellites, in excess of 150, and more likely will be found. However, most of the satellites (and all the recently discovered ones) are very small compared to our moon.
   3. Why did God make a unique moon? Since the first night Adam stared up at the starry heavens, he must have marveled how the "lesser light" illuminated his otherwise dark nights. In recent times, astronomers have discovered other benefits of the moon, which helps to regulate living conditions on the earth. As far as we know, no other planet in the universe has such a perfectly matched satellite.

B. Regulating the earth's tilt and tides.
   1. When compared with the mass of the earth, the moon is very large. While some of the satellites of Jupiter and Saturn are more massive than our moon, those satellites are not very large when compared to the size of their respective planets. Unlike most satellites in the solar system, which orbit above the equators of their respective planets, the moon orbits in the same plane as the earth orbits the sun.
   2. At the very least, this unusual orbit suggests that the moon's origin is unique, as we would expect because the moon was specially designed to provide light for us and to rule the night.
   3. The moon's relatively large size and unusual orbit are important for several reasons. While the sun's gravity is the dominant force in the solar system, all the other objects in the solar system tug on one another. We call these small gravitational tugs perturbations. These perturbations, if left to themselves, would cause the earth's axial tilt to change dramatically over the years, varying from 0° to 90°. As the tilt gradually changed, both the tropic and the Arctic regions would expand and contract. When the tilt exceeded 45°, some locations would be in both zones at the same time!

4. Instead, by God's wise design, the moon's relatively large mass and unusual orbit combine to stabilize the earth's tilt. As a result, the tilt varies no more than about two degrees (Genesis 8:22).
5. The size and orbit of the moon are also ideal for producing tides on the earth. The daily fluctuation of the tides helps cleanse the shores of the ocean, and they play a vital role in the lives of many sea creatures.

C. Other benefits.

1. The moon's many other benefits are just as important to human life. It is no accident that the sun is 400 times larger than the moon, while the sun is 400 times farther away. This unique situation means that the sun and moon appear about the same size in the sky. So during a total solar eclipse the moon just barely covers the sun. As a result, total solar eclipses are both rare and spectacular. Since the earliest times, nations have used these special events to record the passage of time.
2. Besides this, total solar eclipses allow astronomers to study certain features of God's creation, such as the corona (the "crown" of charged particles surrounding the sun), which they cannot observe at any other time. Besides being very beautiful, the corona is not well understood, so additional study of it is very important in improving our knowledge of the sun.
3. Actually, the moon's existence made modern science possible. One of the key moments in the development of science, as we know it, was Sir Isaac Newton's work with gravity. The greatest problem that Newton tackled was the reason the moon orbited the earth. In solving that problem, Newton developed his theory of gravity. If the earth did not have the moon, Newton might never have reached his amazing insight into the fundamental laws of God's creation, which has made him arguably the greatest scientist in history.
4. While we are thankful that the moon sustains physical life and increases our scientific knowledge, life involves more than the body and mind. The moon provides beauty and wonder. Like every other detail in God's creation, the moon's design points to the power and wonder of the Creator, Jesus Christ, for all to see (Psalm 19:1-6; Romans 1:20).

Conclusion. The creation model suggests that the earth alone sustains life. Life does not arise naturally but exists only where God chose to create it. Could God have made life elsewhere? Certainly He could, but that is not the question. The question is whether He chose to do so. God specially made the earth to be inhabited (Isaiah 45:18). We and the planet that we live on are divine creations, making us unique.

If God made life on other planets, it raises questions about the fall of man and the curse. Romans 5:12 tells us that Adam and Eve's decision to sin introduced sin into the world. Would Adam's sin spread death to other planets? Did God create sentient beings on other planets? If they have souls, are they in need of salvation?

The Bible clearly makes man the center of His attention, so we can be sure that no extraterrestrial creatures are made in the image of God, as we are. They would not be the objects of God's gracious salvation through the death of His uniquely begotten Son, Jesus Christ. Our unique earth, sun, and moon demonstrate that God had a special purpose for man, and you can enjoy that special purpose today!