

## ***Earth Day Essay***

# **Ten Reasons Why Earth is a Special Place in the Universe**

By Roger Hammer

“The sun up there, up there.”

An Eskimo Poem for the Sun, from J. Rothenberg, ed., *Technicians of the Sacred* (Doubleday, 1969.)

We live on a "Goldilocks" planet. On the whole, it's not too hot and not too cold, but just right. While we do experience extreme conditions like fierce storms and yearly swings between seasons, there are some basic reasons why Earth stands out as a uniquely livable place in the universe. Knowing more about our planet simply makes us feel good, and both modern science and ancient wisdom agree on the reasons why. Here are ten of them.

### **1. Temperature**

We really have a comfortable place to live. Yes, our temperature variations range from frozen polar regions to scorching deserts. But even though daily weather is unpredictable, and the four seasons unfold imperfectly from year to year, we are still quite lucky. This is because the moon has a great stabilizing effect on earth by keeping us spinning about our axis without wobbling out of control. Without the moon's earth-facing orbit, a topsy-turvy mix of seasons would result in disastrous swings in climate and seasons without any pattern at all. As a result, you can still find life under almost any condition found on earth. Another temperature stabilizer and life giver is water.

### **2. Water**

It's everywhere. Over two thirds of earth's surface is water. Its peculiar freezing, melting and boiling temperatures enable life. In the Celsius temperature scale, 100 degrees separates water vapor from solid ice, in between which we have liquid water with great capacity to store heat. Water continuously evaporates from liquid to vapor, keeping surfaces dry and causing clouds to condense precipitation once again to complete the cycle. And how fortunate we are that ice floats on water: most solids are denser than their liquid states and will sink. If that were the case, ice frozen in bodies of water would end up on the bottom of lakes and oceans rather than remaining on top. Rather, ice stays on top, allowing fish and other creatures to remain undisturbed below (while keeping glaciers afloat and enabling ice skating for us until the spring thaw.) It is no accident that, in addition to air, earth and fire, water is one of the four ancient alchemical and astrological principles.

### **3. Air**

Ah, what a sweet mixture it is. We have plenty of oxygen to power respiration and keep our bodies active. Using oxygen to burn all types of fuels has kept us warm since man first discovered fire. Oxygen-enabled combustion has powered our factories, lighted, heated, and cooled our buildings, and enabled global transportation. At the same time, our atmosphere is dominated by the inert gas nitrogen and a few other minor players. One of these is carbon dioxide, the input for plants that, along with water, are incorporated into growing plants while producing oxygen. The fact that plant life would generally get along just fine without us might be a little disturbing; but this is all the more reason to appreciate how well endowed our natural forests and prairies truly are. Any other planet would be envious of our atmosphere- if there were any life there to even have such an emotion. Air complements the other three basic principles of the universe, without which there is no life.

#### **4. What We Are**

We are like the earth. The Hermetic principle of “as above, so below” applies to our atmosphere and ourselves. Like earth, human bodies, like many other species, are also made up of  $2/3$  water. Since most of earth’s water is actually salt water, the “normal saline” solution of ocean water is a pretty decent match to our own natural salt content. We are mostly ocean. We are also made of large chains of sophisticated chemicals, including proteins and DNA which are uniquely compatible with, and dependent on, water. And, as we will note below, the search for life beyond earth is largely based on the search for water. As far as we know, chemistry operates the same across the universe, but the chemicals we find anywhere else do not begin to match the rich variety we find right here.

#### **5. Sunshine**

Our own sun is a rather average star that is nonetheless the source of all fossil and solar energy we have had, and will continue to have for billions of years. Stars are the source of every element in the universe. (Supernovas in particular make the heavier elements like uranium.) Every day the sun sends us about one kilowatt per square meter of energy. Too much more radiation, and it would damage plant life rather than power them with photosynthesis. If the sun’s output were much less, temperatures on earth would catastrophically drop. These details may not have been understood by those worshipping the obvious dominance of the sun in the sky with names like Apollo, Horus, Ra, Surya, and many more. But we should feel good to know today that sun, earth, moon, water and life are intimately intertwined and designed for each other. We would be born directionless without the benefit of a sun sign.

#### **6. Moon Dance**

The moon’s influence on earth and its tides has been recognized from the earliest of times. The moon as our sister or mother has ancient roots, with other planets contributing their own influential personalities and characteristics. Earth and our one and only moon revolve around the sun as a single body; the center of gravity is within earth’s circumference while the two bodies do an orbiting dance together. In our annual journey around the sun, we trace a back and forth weaving motion like skaters passing each other around a track. (While a loop-the-loop pattern of the moon revolving literally

around the earth may be no less romantic, it is a common misconception.) Knowing about the sun and moon and earth as a whole should make us feel connected. Yet there is more “up there.”

## **7. Venus**

We also have other nearest neighbors in the solar system. Recent explorations of the nearest two planets, Venus and Mars, are revealing. In astrology and the ancient mythologies, Venus was associated with the goddess of beauty. Contrary to this picture, as our recently landed space probes have confirmed, Venus has a suffocatingly dense atmosphere composed mostly of carbon dioxide, with temperatures around 460 °C (860 °F). This is hot enough to melt the metal lead. Is Venus a warning of climate change gone to the extreme? Compared to Venus, earth is a heavenly place to live. Incidentally, Venus has no moon.

## **8. Mars**

Mars has usually been known as the god of war. In fact it would be a very cold war. The red planet is more temperate than Venus, ranging from -87 °C (-125 °F) in winter to -5 °C (23 °F) in summers, but its atmosphere is very thin. Besides its lack of oxygen, the search for water by space probes that have landed on Mars suggests that there may be some, but it hardly compares to the abundance of water that we have on earth. Neither Venus nor Mars comes anywhere close to supporting life as we know it.

## **9. Search for Exoplanets**

Could there be other earths anywhere else? The search for exoplanets has provided evidence of how unique we really are. The closest candidate within our own solar system is one of Saturn’s moons, Titan. The space probe Huygens that has landed on Titan has sent back photographs of what appears to be rocky hills and flowing rivers. Though the terrain looks rather familiar, Titan’s hills are just sub-frozen ice, and its rivers are liquefied natural gas (methane). Nor has the ongoing search for possible exoplanets in far away solar systems found anything remotely resembling earth’s amenities. No flowing water, no oxygen, no life. We are special and it should make us feel good.

## **10. Choices**

Healthy lifestyles are good for a healthy earth, and vice versa. Water is the solvent for everything we eat and drink, and contaminated water is one of most serious issues of our time. Pollution results from industrial processes that discharge toxic chemicals into water. Eutrophication due to runoff of fertilizers is growing rapidly as the dominant environmental risk to sustainable water quality. Increasingly, disasters result from spilled oil that by its very nature does not mix with water. Moving away from an oil-based economy and practices of chemical agriculture will reduce such loads on global water quality. Reducing reliance on burning fossil fuels can do the same for air quality. These are some of our choices.

## **What’s New is Old**

Our lives on earth can truly be enriched by understanding and appreciating our place in the universe. The backbone of Astrology is of course the earth's position with respect to the sun, moon, and planets. Other teachings agree in complementary ways. Tarot dedicates trump cards to the sun (XIX) and the moon (XVII). In Kabbala, the moon is revealed in the path from Malkuth to Netzach, while the sun emanates along the path from Yesod to Hod. Similar themes relating celestial bodies to their deeper meanings for us are abundant in alchemy and other ancient teachings. Nothing in recent scientific research has diminished the connectivity between earth and our place in the universe.

We may be spinning through the vacuum of space but we are not doing so alone. Today, we celebrate the earth and our neighbors in the universe, near and far, who live together and enable us to be what we are.

### **Poatscript**

This is by no means the only story to be told about our planet. While generally capable of hosting life in amazing diversity and sheer numbers of living things, Earth has a history of extremes, destruction, and death. Earthquakes, volcanoes, floods, drought, tornados, hurricanes, and so on are part of our planetary environment. Our home is friendly to life compared to other planets in our Solar System, but not always "just right."

Nor are we likely to be the most habitable planet in our Galaxy, much less the Universe. As exoplanets are discovered by the hundreds, their characteristics are expanding our dreams of where other life might exist. Some of the candidates are not even planets in the usual sense, but moons of planets. These are exciting times and more will be written about the possibilities.

Further reading:

R.G. Torrens, *The Golden Dawn: The Inner Teachings*. (Weiser, 1973.)

L. Pasachoff and J.M Golub, *Nearest Star* (Harvard U. Press, 2001.)

Updates on space exploration can be found at [www.nasa.gov](http://www.nasa.gov) and <http://sci.esa.int/>

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