Planetary Maze

NASA guides us through the galaxies and beyond.

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photo courtesy of NASA

Looking into space can give us ANSWERS about our past, as well as predicting what can happen in the FUTURE. Scientists have been looking into the galaxy surrounding Earth for over 30 YEARS; however, there is definitely more to SEARCH than meets the eye.

Over 65 million years ago, an asteroid collided with Earth and wiped out dinosaurs. Although NASA scientists are certain that an asteroid will once again collide with Earth, they say it should not happen for another 65 to 100 million years; that is, if our planet can survive the current conditions. What is NASA doing to help sustain life on planet Earth? Is there a plan to combat global warming?

Intelligent life forms are still considered very young compared to the age of the Earth's galaxy dating back over 13 billion years ago. While individuals question the possibility of supporting human life on other planets—such as Mars—as a worst case scenario, NASA believes our efforts should focus on combating the immediate issue of global warming, not colonizing another planet.

"As part of NASA's new exploration initiative, the agency is working to better understand how to enable human beings to live and work for long periods of time in space," says Beth Dickey, Media Relations Specialist at NASA Headquarters in Washington, D.C. "NASA's immediate goal is to build the framework that will allow humanity to extend its reach into the universe in the name of exploration and discovery. Survival may one day be an element of exploration, but it is not our primary focus."

Scientists at NASA are committed to find ways to extend life on other planets. They are also dedicated in the search for life in outer space.

A NASA press release dated December 19, 2001, stated that the sugar-related organic compounds found in the two meteorites could provide the first evidence that another fundamental building block of life on Earth may have come from outer space.

In 2001, NASA Ames Research Center scientist, Dr. George Cooper, and others, published the findings of a unique pair of meteorites that landed on Earth from Mars—a red, rocky planet 49 million miles from Earth and 142 million miles away from the sun. Scientists have already found over 30 meteorites that landed on Earth from Mars, but none with such composition.

"The compounds found in the Murchison and Murray meteorites are related to sugars—two sugars found in DNA and RNA. The process that made them probably happened in other solar systems," says Cooper. "Could it lead to the first signs of human life? Yes; it could happen in other forms. We are assuming these chemicals are the building blocks of life, but there is no certain answer. We're still looking at their properties."

The meteorites contained sugar-related organic compounds that are similar, with respect to the presence of individual polyols. Considering they are critical to all known life forms and are components of the nucleic acids RNA and DNA, perhaps polyols are the compounds that actually gave rise to early life.

"There are reasons to believe that some of the building blocks needed to start life on Earth may have come from outer space," says Dr. Mark A. Sephton of the Planetary and Space Sciences Research Institute, The Open University in the UK, in *Nature* magazine.

According to Sephton, Cooper's work suggests the meteorites contained organic matter displaying many of the features of extraterrestrial compounds. Sephton says that the larger sugar-related molecules that were found in the two meteorites are less abundant than smaller ones and are rare to find on Earth. In addition, the compounds had characteristics similar to amino acids, the building blocks of biological molecules in human beings, also acting as a structural support.

"There has been a growing acceptance that extraterrestrial organic matter, similar to that found in the Murchison and Murray meteorites, provided the raw materials to help kick-start life on Earth. Until now, though, the organic mixtures in carbonaceous chondrites were missing one obvious ingredient from the recipe of life: sugars," says Sephton.

Dr. Orlando Santos, Exobiology Branch Chief at NASA Ames Research Center, says, "We have found mirco-life miles under Earth; we're still not sure if it was due to chemical or biological reactions."

"A variety of polyols are present in and indigenous to the Murchison and Murray meteorites in amounts comparable to amino acids. Analyses of water extracts indicate that extraterrestrial processes including photolysis and formaldehyde chemistry could account for the observed compounds. We conclude from this that polyols were present on the early Earth and therefore, at least available for incorporation into the first forms of life," as published by Cooper in *Nature* magazine, December of 2001, Volume 414.

Although it is possible for biological microscopic structures to live in outer space, Santos believes the Murchison meteorite compounds may have been produced by chemical reactions, with the sugar-related compounds being contaminated. Research; however,

reveals that microbial contamination (the occurrence of inorganic composition) could not have been possible because other sugars would have also been found.

According to Sephton, research suggests the sugar-related compounds were possibly formed in interstellar space where there are vast, dense clumps of dust and gas.

"Starlight could have irradiated icy mixtures of water, ammonia, and carbon monoxide that coated the surfaces of small dust particles. The resulting reactions may have generated simple sugar-related compounds or their precursors. Later, a small dense core inside one of these interstellar clouds collapsed to form the solar nebula, a rotating disk of dust and gas which preceded the early Solar System," says Sephton, of Cooper's research.

Some may say this research is inconclusive, while others will identify it as a missing link that connects us to our past. The only sure way to find irrefutable data is to continue conducting research and utilizing technology.

The Quest For Extraterrestrials

One technology that has aided in the search for life in outer space is the 1000 ft.-long big radio telescope that listens to signals from space. The search for extraterrestrials has been part of NASA's scientific explorations for the past 30 years.

"Technology has been growing fast," says Dan Werthimer, Chief Scientist for SETI@home. "Maybe they're transmitting signals to us, but we don't know what star or frequency to point the telescope at or which star to focus on. We need a lot of computing power."

The more sky you can cover, the more data you can analyze. Therefore, SETI@home uses volunteers to scan the skies and look at frequencies using their personal computers by looking at all local systems and planets in the telescopes' range. Currently, SETI's efforts have established over five million volunteers in 226 countries, forming a supercomputer which totals 100 trillion calculations per day.

"When you point a telescope in a particular direction, the frequency is read wherever the beam is pointed. The further out the beam travels, the more powerful transmitter we need or they need," Werthimer explained, referring to extraterrestrials living on other planets pointing their frequency beams at us. "We can go millions of light years away or close by, but no one knows the best thing to do."

Werthimer has been studying life in outer space for over 35 years. He is hopeful that we will find some form of life on another planet or in another galaxy, but it hasn't happened yet. And, as a scientist, he is very aware of our climate changes, especially what is happening with global warming.

"Global warming is an urgent problem, and it's hard to reverse. It could cause huge damage within 50 years and will change our climate. Famines, war, and deaths—I wish our administration would take this more seriously. It takes will, and hopefully, things will change with a new administration," Werthimer says.

Satellite View

Claire L. Parkinson, scientist at NASA Goddard Space Center in Maryland, devotes her life to the study of ice caps. She records and analyzes how these structures are changing our planet and how critical global warming has become for our present and future to come.

"Until we had satellite transmission, it was hard to get global data. Since the '70s, we have been able to see the total globe and witness an even distribution of what's going on in our planet. By the late '70s, we were able to convert satellite data into data about ice in the arctic and compile seasonal cycles. It wasn't until the late '80s that we found interesting changes; over time the sea ice was noticeably decreasing. This became very important data," says Parkinson.

As ice caps in the Antarctic are melting, sea levels and atmospheric temperatures are rising. Some may believe that human beings are the only ones to blame for this devastation; however, Parkinson has evidence to prove we are not solely to blame.

"The retreat in glaciers—ice sheets—is visual evidence for the impact of global warming, but human beings are only partially responsible. The climate has been changing for 4.6 billion years."

Satellite data has enabled NASA scientists to analyze the entire global view of what is happening to our planet,

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from finding living organisms deep below ice sheets where no sunlight is present, to seeing hurricanes like Katrina well before it makes landfall.

"Satellites have revolutionized the way we see our home planet…Satellites and their instruments are extraordinary, almost miraculous devices, among the most intricate and complex things that man has devised, incredibly expensive and unbelievably powerful and useful," quoted from the book, *Our Changing Planet*, edited by four scientists and researchers; one scientist being Parkinson.

As Parkinson explains, global warming affects life of all kinds. The retreat in glaciers significantly affects polar bears, as they depend on the sea ice. Since the ice is not there for them, they are forced onto land. Arctic foxes are also being affected.

"Is there life out there?" Any life form may not need exactly what we expected or what human beings need. Sea ice is also the home to living organisms. In the 1980s, life forms—even large creatures—were found living in the deep sea with no sunlight. This shows that life doesn't necessarily need sunlight to exist.

Parkinson says that life forms may not need exactly what we, as human beings, expect in order to survive. As her research continues to provide NASA with critical information on the drastic changes of our planet, scientists—like Parkinson—can only take the information so far.

"NASA provides the best data and analysis, but it is up to the decision makers to make the proper changes—not the scientists," Parkinson says. "It's the politicians and the American public that must implement change."

Legislative liaisons, not scientists, help establish the action to support NASA's findings and help mandate such changes. One of the most vocal at Goddard, advocating and getting the word out to the public and politicians since his warming predictions in 1988, is Dr. James Hansen, top Climate Scientist and Director for NASA's Goddard Institute for Space Studies in NYC. Hansen has been calling for emissions reductions and according to Parkinson, Hansen recently visited Capitol Hill, where he gave testimony to the U.S. Congress. Hansen reportedly criticized the Intergovernmental Panel on Climate Change (IPCC), arguing that the predicted sea level rises were far from sufficient.

"As a member of the U.S. National Academy of Science, it was Hansen's testimony on climate change given to congressional committees in the 1980s that triggered early public awareness of the problem of global warming," explains Professor John Shepherd on the ClimateChangeCorp.com website. "If the NASA scientist's calculations are correct, we face a problem far more serious than previously suggested. Hansen is convinced that if we continue to burn fossil fuels relentlessly, there is no question coastal nations worldwide will experience unprecedented flooding."

Hansen developed models and testified before the U.S. Senate with scientific evidence of global warming in 1988. Unfortunately, 20 years later, little to no action has been taken.

"Even within NASA, there will be disagreements in research; basically, we do the best we can to get the data out," says Parkinson.

What About Mars?

There is a huge effort to explore Mars. An incredible wealth of data has already been taken, as efforts to capture data from Mars began 30 years ago. Over 11 years ago, the Mars Global Surveyor was launched and examined the entire planet. Large amounts of water from the distant past were found deep below the surface of Mars, showing that there could indeed be life on the planet.

"A Mars-orbiting spacecraft has spotted a subterranean natural plumbing system that might have ferried water beneath the surface of the red planet in the distant past," wrote Ker Than in February 2007, on Space.com. NASA photos reveal images showing "hills and plateaus with alternating layers of dark- and light-colored rocks in Candor Chasma, one of several canyons that make up Valles Marineris, a sprawling Martian rift valley that is longer than the contiguous United States and up to seven times deeper than the Grand Canyon in places."

Santos explains there are many solar systems like ours, and that it's just a matter of time before we receive more answers about Mars and life in outer space.

"Colonizing Mars; however, is a different endeavor all together. Any species from Earth cannot survive off our planet," says Santos.

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As two rovers have spent three years exploring the red planet, performing geological inspections, by 2009 NASA will launch a huge rover the size of a Mini Cooper that will be ready to explore the planet. Thus, the exploration continues.

The End?

As far as the worst case scenario, it is much more feasible that we could destroy our Earth due to global warming rather than a meteorite colliding with our planet.

Santos believes for long term survival, it makes sense for the human race to colonize on other planets. "Look what happened when a meteorite wiped out the dinosaurs," Santos says. "But yes, it is certain we could colonize on other planets."

Prophets such as Michel de Nostradamus, Mother Shipton, St. Malachy, and Edgar Cayce perhaps knew exactly what is — or might — be happening, but it is the ignorance of man to deny such visionary conclusions.

Cayce, first a psychic healer and later considered a seer, would go into his subconscious mind, similar to a state of meditation, would make historic predictions about the future for anyone who would ask for answers and tell his audience to 'test' his suggestions rather than accepting them immediately. Cayce would also recount information from the Akashic records, a universal source of knowledge that held all of the pasts, presents, and unfolding futures of mankind. Yogis believe these records can be achieved with complete concentration through the Self's own psychic powers.

"Edgar Cayce said, 'Ultimately, when you view it from the highest dimension, there is no time and no space; there is no future and no past. It all is occurring in one fascinating moment of expression, but time is an illusion that has purpose,'" reported John Van Auken, Director of Association for Research and Enlightenment, Inc. (A.R.E.), in a video on Nostradamus for the History Channel.

Miraculously, Cayce had predicted the First and Second World Wars, the independence of India, the death of two presidents (F.D.R. and J.F.K.), and the financial devastation of the stock market crash in 1929.

"Cayce also predicted the possibility of a third-world war. He spoke of strifes arising 'near the Davis Straits,' and 'in Libya, and in Egypt, in Ankara, and in Syria; through the straits around those areas above Australia, in the Indian Ocean and the Persian Gulf,'" wrote Bob Leaman, from the publication in 1986, *Armageddon: Doomsday in Our Lifetime?*.

However, quite possibly the most disturbing predictions were those Cayce made of global warming, resulting in a New World Order, very similar to what is written in the ancient Hindu scriptures, the Vedanta. 'Veda,' meaning knowledge, and 'anta,' meaning the end or goal, essentially come together to reveal God as an infinite existence, infinite consciousness, and infinite bliss; exactly how Cayce describes his prophecies.

Another writing from Cayce says, "There will be the upheavals in the Arctic and in the Antarctic that will make for the eruption of volcanoes in the torrid areas, and there will be the shifting then of the poles so that where there has been those of a frigid or the semi-tropical, will become the more tropical, and moss and fern will grow."

The mystical account of such prophecies have placed either skepticism or fear in many minds; the truth is that global warming is causing our planet to literally self-destruct. And, although human beings may not be entirely all to blame, it is our duty as intelligent life forms to take action and use NASA's research and scientific predictions to make changes.

As said in Cayce's reading, 2981-2, "Know that all the power there is of body, of soul, lies within yourself, and God is not a respecter of persons. And if you keep attuned to Him, who may surpass you?"

There may be less than 50 years to implement change, and although some may believe there is nothing we as human beings can do, think again. There are many actions we can take; the first step is awareness and self-knowledge; read through NASA's analyses and find local or national policy makers to adhere to change. Get involved in your home first and tell everyone about the impact that lies ahead. If we don't pay attention to this data now, the end may fearfully be sooner than predicted. **A**