

Ice Comets and Life on Earth

Dr. Kate Vandemoer, Chair, IHMA; Hydrologist

Water is the *only substance on earth* that exists in three states: solid, liquid, and gas. Naturally, this poses the question—as Dr. Emoto asked two decades ago—did water on earth come from outer space? And did the water from outer space carry the organic seeds necessary for life on earth? Recent scientific research and observation confirms Dr. Emoto’s early thoughts in a most dramatic and amazing way.

Comets and asteroids have been a subject of study and speculation for eons. It is well known now in the scientific community that most comets are made of rock, ice water, and icy chemical substances (called “icy dirtballs”) and that asteroids are made of rock and metal. While most comets are found in the outer parts of our solar system and were thought to reach earth only infrequently, recent discoveries suggest that icy comets embedded in the belt of asteroids between Mars and Jupiter may be the origin of the earth’s water supply.¹

Dubbed “main belt comets”, these objects are much closer to and are the likely source of water on earth. Studies to date do not match the chemistry of current sea water with the ice comet water, but more research is needed as these “ice comets” previously masking as asteroids have now been found closer to earth than previously thought.²

One can easily imagine how the earth received most of its water by noting that scientists estimate that one ice comet weighing 20-40 tons hits earth’s atmosphere every 3 seconds. This water of course then becomes atmospheric water which becomes part of the water balance on earth. If this phenomenon has occurred for an estimated 4.5 billion years, it is totally conceivable that the oceans and other planetary waters could have originated from comets.

So it seems eminently plausible now that a large portion of the water on earth did in fact come from outer space, giving rise to its uniqueness among elements of the earth by existing in the solid, liquid, and gaseous phases. If this is true, then how did water carry or acquire the “organic seeds” necessary for the beginning of life?

Astronomers believe that the earth formed under hot and dry conditions, relying on ice from comets to build up its stores of water and become habitable. But even before the ice comets hit the earth, it is possible that photochemical reactions in ice in the interstellar medium resulted in the formation of complex organic molecules, which were then delivered to earth as meteorites, comet dust, and asteroidal dust through billions of years.³

Once supplied to earth, water—filled with its organic chemical complexes—became the mechanism for the development of life, powered by the fire of the sun of the earth’s interior and fueled by the earth’s volatiles.

A simple observation that water is different from every other element on earth has indeed led to profound insight into the nature life on earth, and its inextricable bond with water.

¹ Malik, T. 2006, *Space.com*, “Comets posing as asteroids might be source of earth’s water”, March 2006.

² Ibid, February 2006, David Jewett, Astronomer, University of Hawaii and author of study

³ Bernstein, Max, NASA Ames Research Center, 2001. “Water in the Universe: Water, Interstellar Life, and Setting the Stage for Life on Earth”, in proceedings, Geological Society of America annual meeting, November 2001.