Evidence of liquid water in comets reveals possible origin of life

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Comets contained vast oceans of liquid water in their interiors during the first million years of their formation, a new study claims.

The watery environment of early comets, together with the vast quantity of organics already discovered in comets, would have provided ideal conditions for primitive bacteria to grow and multiply. So argue Professor Chandra Wickramasinghe and his colleagues at the Cardiff Centre for Astrobiology in a paper published in the *International Journal of Astrobiology*.

The Cardiff team has calculated the thermal history of comets after they formed from interstellar and interplanetary dust approximately 4.5 billion years ago. The formation of the solar system itself is thought to have been triggered by shock waves that emanated from the explosion of a nearby supernova. The supernova injected radioactive material such as Aluminium-26 into the primordial solar system and some became incorporated in the comets. Professor Chandra Wickramasinghe together with Drs Janaki Wickramasinghe and Max Wallis claim that the heat emitted from radioactivity warms initially frozen material of comets to produce subsurface oceans that persist in a liquid condition for a million years.

Professor Wickramasinghe said: "These calculations, which are more exhaustive than any done before, leaves little doubt that a large fraction of the 100 billion comets in our solar system did indeed have liquid interiors in the past.

Comets in recent times could also liquefy just below their surfaces as they approach the inner solar system in their orbits. Evidence of recent melting has been discovered in recent pictures of comet Tempel 1 taken by the "Deep Impact" probe in 2005."

The existence of liquid water in comets gives added support for a possible connection between life on Earth and comets. The theory, known as cometary panspermia, pioneered by Chandra Wickramasinghe and the late Sir Fred Hoyle argues the case that life was introduced to Earth by comets.

Source: Cardiff University (news : web)