

# Life on Earth 'unlikely to have emerged in volcanic springs' (Forwarded)

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Life on Earth 'unlikely to have emerged in volcanic springs'

The latest findings of experiments to re-create the conditions under which life could emerge from chemical reactions suggest that volcanic springs and marine hydrothermal events are unlikely to have provided the right environment, a leading researcher from the United States will tell an international meeting tomorrow (14 February 2006) at the Royal Society, the UK national academy of science.

David Deamer, professor emeritus of chemistry at the University of California at Santa Cruz, will reveal his results to delegates at a two-day international scientific meeting on 'Conditions for the emergence of life on the early Earth'. His results, not yet published, were obtained from experiments carried out in the volcanic regions of Kamchatka, Russia, and Mount Lassen, California, USA.

Ahead of his presentation, Professor Deamer said: "It is about 140 years since Charles Darwin suggested that life may have begun in a 'warm little pond'. We are now testing Darwin's idea, but in 'hot little puddles' associated with the volcanic regions of Kamchatka and Mount Lassen.

"The results are surprising and in some ways disappointing. It seems that hot acidic waters containing clay do not provide the right conditions for chemicals to assemble themselves into 'pioneer organisms'.

"We found that organic compounds like amino acids and the bases of DNA, which are the building blocks for life, became strongly held to the surfaces of clay particles in the volcanic pools in Kamchatka. Phosphate, another essential ingredient for life, also became held to the surface of the clay. We saw the same thing in a boiling pool at Mount Lassen.

"The reason this is significant is that it has been proposed that clay promotes interesting chemical reactions relating to the origin of life. However, in our experiments, the organic compounds became so strongly held to the clay particles that they could not undergo any further chemical reactions.

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"In addition, when we introduced soap-like molecules into the pools, they did not form membranes, which would be required to form cells."

Professor Deamer added: "We don't know what to make of this yet, but these results do appear to narrow down some of our ideas about where life could have begun. One possibility is that life really did begin in a 'warm little pond', but not in hot volcanic sp