Special Issue

The Origin of Biomolecules on the Early Earth at Volcanic Hydrothermal Settings

Message from the Guest Editors

The formation of biomolecules is an indispensable prerequisite for the emergence of life on Earth.

Concerning the origin of such biomolecules, different habitats and conditions have been discussed in the scientific community, but there is no consensus about even the principal questions: terrestrial origin or initiated through meteoritic impacts, hot or cold origin, and so on.

Volcanic hydrothermal settings on early Earth constitute one of the possible habitats for the formation of biomolecules from inorganic precursors. Metal minerals like iron and cobalt are abundant in Earth´s crust and could act as catalytic surfaces in the aqueous environment. Hydrothermal exhalations deliver a constant flow of simple as substrates for the formation of simple organic molecules.
Temperature and pH gradients in hydrothermal fluid flows as well as different bonding strength to the mineral surface allow selectivity and trigger reaction pathways to ever more complex biomolecules.

In this Special Issue we highlight all aspects of biomolecule formation under hydrothermal conditions. Scientific perspectives, research or review articles are encouraged for submission.

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