



Iron particles in Earth's early atmosphere

Slide by Neil Goalby. Available from rsc.li/3CTgqmS

Iron-rich nanoparticles from meteorites and volcanoes could have catalysed the conversion of CO_2 on early Earth into the organic molecules needed for life to form.

Researchers replicated the process by using particles from crushed meteorites and volcanic ash and applied the high temperatures of the time (150–300°C). The particles catalysed the conversion of CO_2 in the presence of atmospheric H_2 or H_2O , generating aldehydes, alcohols and hydrocarbons. These compounds are important building blocks for amino acids, carbohydrates and nucleic acids.



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Could volcanic dust in early Earth's atmosphere led to life forming?

Questions

1. What was the main gas present in the Earth's early atmosphere?
2. Suggest how the process could cause life to form on Earth.
3. Describe **two** other processes that reduced CO_2 levels in Earth's early atmosphere.