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PREBIOTIC CHEMISTRY

Hydrogen Cyanide Production due to Mid-Size Impacts in a Redox-Neutral N_2-Rich Atmosphere

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Abstract Cyanide compounds are amongst the most important molecules of the origin of life. Here, we demonstrate the importance of mid-size (0.1–1 km in diameter) hence frequent meteoritic impacts to the cyanide inventory on the early Earth. Subsequent aerodynamic ablation and chemical reactions with the ambient atmosphere after oblique impacts were investigated by both impact and laser experiments. A polycarbonate projectile and graphite were used as laboratory analogs of meteoritic

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