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Geobiological Feedbacks and the Evolution of Thermoacidophiles



Eric Boyd

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Thursday, February 28, 2019

4 p.m. in CBB-102

Feedbacks between biological and geological processes drove the co-evolution of life and its environment. Yet, little is known of the nature of these feedbacks and the time scales over which they occur. Here we describe a series of geobiological feedbacks that have played out over the past ~ 1.1 to 0.8 Ga and that shaped the co-evolution of the thermoacidophiles and their acidic hot spring habitats. Future experimentation will evaluate kinetic controls on the acid-generating reactions and the physiological adaptations that allowed microbes to exploit these reactions to fuel their metabolisms.

Eric Boyd is associate professor of microbiology at MSU. He studies the geomicrobiology of rock-hosted ecosystems as analogs for microbial metabolism on Earth prior to photosynthesis and how microbial life diversified in response to changing availabilities of mineral-sourced nutrients. Eric was an undergraduate at Iowa State University. His Ph.D. is from MSU.