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Subterranean Biosphere -- The Complex Interplay of Sulfur and Arsenic Bioenergetic Metabolisms in the Arsenic Geochemical Cycle.

Sommario/riassunto

This volume brings together leading international experts to offer a unique and timely perspective on geomicrobiology through their latest research and findings. Chapters address interactions of marine and freshwater microorganisms contributing to geochemical cycles, including biochemical mechanisms for mineralization and transformation of solid minerals and dissolved metals. In addition, the resilience and physiological elasticity of specific bacteria in extreme environments is discussed, such as mechanisms of metal homeostasis and electrochemistry involving extracellular electron flow. Further coverage includes resource recovery (metals, minerals) using microbial-driven processes and technologies, with the aim to contribute to a better understanding of microbial potential within the framework of circular economy. This book is designed for professionals and students, including environmental engineers, microbiologists, and individuals studying the interaction of bacteria with metals and minerals in the environment. It is also a resource for students in academic programs or short courses focused on bacterial diversity in the environment, systems of bacterial energetics, resource recovery, and bacterial activities in extreme or nutrient-stressed environments. .