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Nota di contenuto	Frontmatter -- Preface / Wagner, Dirk / Kallmeyer, Jens -- Contents -- Contributing authors -- 1. Studies on prokaryotic populations and processes in subseafloor sediments - an update / Parkes, R. John / Sass, Henrik / Cragg, Barry / Webster, Gordon / Roussel, Erwan / Weightman, Andrew -- 2. Life in the Oceanic Crust / Biddle, Jennifer F. / Jungbluth, Sean P. / Lever, Mark A. / Rappé, Michael S. -- 3. Microbial life in terrestrial hard rock environments / Pedersen, Karsten -- 4 Technological state of the art and challenges / Toffin, Laurent / Alain, Karine -- 5. Detecting slow metabolism in the subseafloor: analysis of single cells using NanoSIMS / Morono, Yuki / Ito, Motoo / Inagaki, Fumio -- 6. Quantifying microbes in the marine subseafloor: some notes of caution / Lloyd, Karen G. -- 7. Archaea in deep marine subsurface sediments / Teske, Andreas -- 8. Petroleum: from formation to microbiology / Ollivier, Bernard / Borgomano, Jean / Oger, Philippe -- 9. Fungi in the marine subsurface / Edgcomb, Virginia / Orsi, William / Biddle, Jennifer F. -- 10. Microbes in geo-engineered systems: geomicrobiological aspects of CCS and Geothermal Energy Generation / Alawi, Mashal -- 11. The subsurface habitability of terrestrial rocky planets: Mars / Cockell, Charles S. -- 12. Assessing biosphere-geosphere interactions over geologic time scales: insights

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Sommario/riassunto

Over the last two decades, exploration of the deep subsurface biosphere has developed into a major research area. New findings constantly challenge our concepts of global biogeochemical cycles and the ultimate limits to life. In order to explain our observations from deep subsurface ecosystems it is necessary to develop truly interdisciplinary approaches, ranging from microbiology and geochemistry to physics and modeling. This book aims to bring together a wide variety of topics, covering the broad range of issues that are associated with deep biosphere exploration. Not only does the book present case studies of selected projects, but also treats questions arising from our current knowledge. Despite nearly two decades of research, there are still many boundaries to exploration caused by technical limitations and one section of the book is devoted to these technical challenges and the latest developments in this field. This volume will be of high interest to biologists, chemists and earth scientists all working on the deep biosphere.
