

Deep-Sea Mining: Resource Potential, Technical, Environmental and Management issues

Preface

Mankind's quest for exploration has led him to traverse from the vast expanse of outer space down to the deepest parts of the oceans. One such discovery in the later part of the nineteenth century was that of minerals on the seafloor, that are now being looked upon as the alternative source of some of the strategic metals that are feared to get exhausted on land in the coming decades.

In the present century, a sudden leap in the number of entities that have filed claims over seabed areas in international waters under the UN Law of the Sea, as well as the growing interest of state sponsored as well as private entrepreneurs in mining of the seafloor deposits leading to development of guidelines by regulating agencies such as the International Seabed Authority, has necessitated a synthesis of available information related to deep-sea mining.

In spite of several challenges associated with the exploitation of these deposits in terms of operating under extreme conditions in the open seas, the ingenuity of the humankind has not only led to the development of technologies to gather information about the environs of where these minerals occur, but also in formulation of techniques to bring them up from the deep-sea floor and extract precious metals. However, the outcomes of research conducted around the world on different aspects of deep-sea mining are currently available in scattered sources.

This book attempts to bring together diverse perspectives of authors from around the globe who have been working on various issues related to deep-sea mining for several decades. The first section of the book focuses on the distribution characteristics of deep-sea minerals, their resource potential, and techniques for mapping. The second section is devoted to concepts of deep-sea mining technologies and their utility for other industrial applications.

The book continues with authoritative overviews on metallurgical processing techniques for extraction of metals and sustainable use of mine tailings; as well as the associated environmental concerns for prediction and management of impacts related to deep-sea mining.

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