

DEVELOPMENT OF NEW EXPLORATION TOOLS FOR DEEP SEABED MINERAL RESOURCES BY USING ELECTRICAL AND MAGNETIC METHODS

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Seabed resources like submarine hydrothermal deposits and methane hydrate have lately become a subject of special interest as potential alternative resources for the future. It is, however, difficult to estimate the accurate abundance of those resources. One of the reasons is considered that effective methods for such exploration have not been well-established. On the other hand, undersea technology and exploration techniques on land have recently achieved remarkable development. Thus appropriate exploration near the sea floor must advance great development of the deep-sea resources. From this point of view, we started a project to develop new deep-sea exploration tools for seabed resources by electrical and magnetic methods with financial support of MEXT (Ministry of Education, Culture, Sports, Science and Technology - Japan). In this project, we are working on research and development regarding measurement of the magnetic field with high resolution and high sampling rate, electrical exploration with accurately controlled source signals, electrical exploration tools for shallow and deep targets, versatile instruments of electrical and magnetic explorations with multi-platforms (deep-tow system, ROV (Remotely Operated Vehicle), and AUV (Automated Underwater Vehicle)), comprehensive analyses of electrical, magnetic, acoustic and thermal data, and so on. We will introduce the outline and the current state of the project (including sea trial of deep-sea magnetometer) in this presentation.

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