

Factors controlling the distribution of ferromanganese nodules in the Minamitorishima EEZ

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Ferromanganese nodules are polymetallic concretions consisting mainly of manganese and iron, which are found in deep-sea surficial sediments in many areas of the world ocean [1]. Since 1960s, the nodules are of high economic interest due to their enrichment of valuable metals such as Ni, Cu, and Co [2]. Very recently, large-scale distribution of ferromanganese nodules has also been confirmed within Japanese exclusive economic zone (EEZ) around Minamitorishima island [3, 4] and, for future exploitation of the nodules in the Minamitorishima EEZ, detailed investigation to elucidate the origin and distribution of the nodules is needed.

Ferromanganese nodules have long been studied extensively, especially those occurring between the Clarion and Clipperton fracture zones [5]. However, many important questions still remain unanswered regarding the formation and distribution of the nodules. In particular, factors controlling the distribution of ferromanganese nodules have been one of the most important problems to solve. Correlation between nodule distribution and deep-sea currents has long been pointed out in the southern Pacific and southern Indian Oceans [6, 7]. Moreover, it has been considered that hiatus of the underlying sediments, caused by deep-sea currents, is also related to the occurrence of ferromanganese nodules [6, 8].

In this presentation, we will discuss the factors controlling the distribution of ferromanganese nodules in the Minamitorishima EEZ in relation to underlying sediments and deep-sea currents.

References:

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