

Distribution of Co-rich ferromanganese crusts and evolution of the seamounts in the NW pacific

OKAMOTO, Nobuyuki^{1*}

¹Japan Oil, Gas and Metals National Corporation

Marine hydrogenetic ferromanganese crusts are known as potential mineral deposits for cobalt, nickel, platinum, rare earths and other metals of emerging economic interest.

The crusts show particularly high concentrations of rare metals for high-technology and green technology and usually cover stable rock outcrops in large areas of crests and slopes of seamounts where pelagic sedimentation is generally low or often lacking, thus the Northwest (NW) pacific seamount provinces are most promising sites for future deep-sea mining.

The ferromanganese crusts have been studied in this area by a number of scientific researchers from several countries.

Japan Oil, Gas and Metals National Corporation (JOGMEC) commenced survey cruises for the crusts in 1987. In 2014, JOGMEC also obtained an exclusive license from the International Seabed Authority for the crusts in the high sea of NW pacific. The area located approximately 600 km offshore of south-east of Minami-tori-shima island in the EEZ of Japan.

However, our scientific knowledge for understanding the origin, nature, environments and economic potentiality is still limited.

The patterns of distribution, resource potential and the relationship to geological parameters were found to be characterized by the potentiality for the ferromanganese crusts little by little. In this presentation, the relationship between crust abundance and diversity in the geological evolution of the seamounts in the NW pacific is discussed on the basis of bathymetric, geological, geophysical and environmental data.

Keywords: cobalt-rich, ferromanganese crust, northwest pacific, seamount