

Patriotism Leads to Rare Earth Discovery

Yoshiko Sakurai

Massive rare earth mud has been found at the seabed in Japan's exclusive economic zone around the easternmost Japanese island of Minami-Torishima, some 1,800 kilometers from Japan's Honshu main island. The rare earth content of the mud ranges from 1,000 to 1,500 parts per million, indicating the rare earth mud has several times better quality than China's mud whose rare earth content is limited to 400 ppm. The discovery has been achieved by Yasuhiro Kato, a professor at the School of Engineering of the University of Tokyo, and his research team.

Before the discovery in the Minami-Torishima waters, Dr. Kato and his team had reported the presence of similar rare earth mud in the seabed of French Tahiti on Britain's "Nature Geoscience" magazine last July.

Senkaku incident accelerated the research

There are 16 rare earth minerals, divided into the light and heavy groups. Particularly important are heavy rare earth minerals. Rare earth mud off Minami-Torishima features a high content for heavy rare earth minerals that are indispensable for hybrid cars, electronic devices, optical disc systems, ecology-related technologies and latest military technologies.

For rare earth supply, the international community depends heavily on China that accounts for 97% of global rare earth production. As seen after a Chinese fishing boat's invasion of Japanese territorial waters near the Senkaku Islands in the East China Sea in 2010, China has used rare earth as its strategic tool. In some cases, China's rare earth exports were used to effectively intimidate importers into transferring sophisticated technologies to China.

The Kato team's discovery has potential to turn around the global rare earth situation. Japan with the massive rare earth resources now has gained power to deter China from behaving outrageously and build a world strategy as a future industry leader.

In fact, the Senkaku incident prompted Prof. Kato to accelerate his research on rare earth mud and achieve the confirmation of rare earth resources off Minami-Torishima. The Kato team's patriotic passion for Japan has brought about the good news.

Japanese government should support development

Although the seabed in the Minami-Torishima waters is up to 5,600 meters deep,

Japan can use its excellent technologies to relatively easily collect rare earth mud from the seabed without causing environmental pollution. An estimate indicates that a ship could collect rare earth mud at a daily pace of 10,000 tons. Annual output at 3 million tons may cover 10% of Japan's annual rare earth consumption, or nearly 20% of dysprosium consumption, generating 70 billion yen in sales. Dysprosium is one of the most important rare earth minerals.

While media reports said rare earth deposits off Minami-Torishima would be equivalent to 200 years' consumption in Japan, another estimate indicates the deposits as far more. The other estimate gives the deposits as equivalent to 20,000 years' consumption, 100 times more than reported.

The rare earth deposits are of strategic importance. The government must fully support the Kato team. In fact, however, the Ministry of Economy, Trade and Industry is said to have provided no support for the team while receiving relevant reports and requests for support from Prof. Kato over the past several years. The rigid bureaucracy should not impede Japan's jump-start.

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