

## Acoustic characterization of deep-sea sediments by sub-bottom profiler

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Subbottom profiling was conducted in the Japanese Exclusive Economic Zone (EEZ) around Minamitorishima Island to reveal the distribution of REY-rich mud in the Minamitorishima EEZ. Based on the shape and pattern of the reflectors, three discrete acoustic facies of opaque (O) type, transparent (T) type, and layered (L) type were distinguished. Distribution of the O-type facies is restricted to just on or immediate vicinity of seamounts, suggesting that this acoustic facies corresponds to rocky outcrop without soft sediment cover. The T-type facies occurs in northern part and southern to southeastern part of the Minamitorishima EEZ, whereas the L-type facies widely covers central part of the area. By comparing the sub-bottom profiler record with sediment core samples obtained by piston coring shows that the acoustic facies T corresponds to REY-rich mud, whereas acoustic facies L corresponds to non-REY-rich terrigenous sediment.

Keywords: REY-rich mud, Minamitorishima Island, sub-bottom profiler, Exclusive Economic Zone