

Origin of coastal sand and dredged marine sediment around Iki Island, Nagasaki Prefecture

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Iki island which lies in the western part of Genkai Nada Sea, between Kyushu Island and Tsushima Island, Nagasaki Prefecture, has an area of 134 square kilometers.

Active sand dredgings are carried out around Iki island. These activities have caused coarsening of marine sediment and topographic changes and influence on fisheries by distribution of suspended particles and coastal erosion are attracted public concern.

In this presentation, we will deal with coastal erosion among above mentioned issues.

Grain size analysis and coarse fraction analysis were carried out on dredged sediment and beach sandy sediment.

Dredged sand and beach sand are clearly distinguished based on grain size and sorting index. In addition, dredged sand can be easily distinguished from beach sand by coarse fraction composition for including iron stained quartz and many rock fragments and silicate minerals. On the other hand, beach sand can be distinguished by containing many biogenic fragments and less silicate minerals and rock fragments.

Iron stained quartz is regarded as index for relict sediment which derived from sediment of lower sea level during glacial age. On the other hand, origin of beach sand is supposed to come from beach erosion of rocks, flood sediment or reworked shallow sea sediment containing biogenic fragments. Based on these results, dredged sand differs in origin from beach sand and has no relation to coastal erosion.

Keywords: sediment, iron stained quartz, coastal sand, Iki island, grain size analysis, sand grain assemblage