Depositional environment based on grain size of surface sediments around Okinoerabu-jima, Tokuno-shima and Amami-oshima Islands

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The spatial variation of grain size around Okinoerabu-jima, Tokuno-shima and Amami-oshima Islands located at Ryukyu Islands was compiled based on surface sediment samples and seabed photographs. Surface sediments around islands above the water depth of 600 m show gravels and very coarser sands characterized by high contents of calcium carbonate deposition mainly originated from coral, shells and briozoans. On the other hand, slope and flat areas below the water depth of 600 m are deposited medium-very fine sands (2-4ϕ) and shows to become a finer toward increasing in water depth, concave geometry including the Yoron and Okinoerabu basins in silt (4-7ϕ). These results indicate that hydrodynamics effects to sedimentary process decrease toward the increasing water depth and hemipelagic sediments are deposited in the basin. Ripple marks in the seafloor are observed at 66 sites by the seabed photographs. The water depths of these sites are mostly above 1000 m and the values of grain size 1-3ϕ. The current directions assumed by the ripple mark show complex changes and indicate that the bottom currents change affected by the microtopography.

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