

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 sea photography. 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 bryozoans. In the western area of the Okinoerabu-jima, Tokuno-shima and Amami-oshima Islands (eastern edge of Okinawa Trough), slope and flat areas are deposited medium-very fine sands (2-4 ϕ) and shows to become a finer toward increasing in water depth, concave geometry like the Yoron and Okinoerabu basins in silt (4-7 ϕ). On the other hand, grain size in the eastern area of the Okinoerabu-jima, Tokuno-shima and Amami-oshima Islands (Pacific Ocean side) shows a coarser than that of the same water depth at the eastern edge of Okinawa Trough. Composition of planktonic foraminifera in sand sediments of 1 ϕ increase with water depths. These results indicate that hydrodynamics effects to sedimentary process decrease toward the increasing water depth and hemipelagic sediments are deposited in the basin. Depositional environment in the Pacific Ocean side area is affected by stronger hydrodynamics than the eastern edge of Okinawa Trough area caused by open topographic.

Keywords: grain size, seabed photography, surface sediment