

Geological structure of North Okinawa Trough and Geology of Koshikijima Island

hisashi Ohiwane[1]; Satoshi Tohnai[2]; Hidekazu Tokuyama[3]; Shoichi Kiyokawa[4]

[1] Earth and Planetary Sci., Kyushu Univ; [2] Earth and Planetary Sci., Kyushu Univ; [3] ORI, Univ. Tokyo; [4] Earth & Planetary Sci., Kyushu Univ.

Seafloor geological structure of Southwestern Kyushu

Southwestern Kyushu is on the intersection of southwestern Japan arc and Ryukyu arc. This area is on the northern end of Okinawa Trough, which is a continental backarc basin. Studying this area will enable us to understand what may happen at the end of backarc basin. In this study, I studied about seafloor geological structures of Southwestern Kyushu.

1) seafloor-topography of southwestern Kyushu

I drew a detailed bathymetry map of this area from the data surveyed by geological survey of Japan. The E-W cross section shows half-gaben structure. This structure is a typical structure in the initial stage of backarc basin. There are two lineaments prominent; A) NNE-SSW Fault scarps, which relief is more than 500m, and are parallel to the direction of axis of Okinawa Trough. These faults are active, for some faults offset surface sediments. B) WNW-ESE erosional channels. This lineament well develops on the continental shelf of East China Sea. These both lineaments seem to be active.

2) Geologic structure of Koshikijima-Islands

Koshikijima Islands are on the Northeast end of Okinawa Trough. The Himenoura Group (upper-Cretaceous), the Kamikoshikijima Group (Pliocene), and Miocene Igneous rocks are distributed in this area. Koshikijima Islands had three major diastrophisms (D1, D2, and D3; in chronological order) and three times of intrusion of Igneous rocks (I1, I2, I3; in chronological order). D1 formed angular conformities. D2 is accompanied by fault activity which has WNW-ESE strike (F2), and D3 is accompanied by fault activity which has NEN-SWS strike (F3). The latest structure of all in this area, the NEN-SWS strike, of F3 is the same strike as that of Okinawa Trough axis.

It is possible that Okinawa Trough-forming fault activities emerge on Koshikijima Islands, which is F3.