

## Amami Sankaku Basin its geotectonic significance

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Amami Sankaku Basin (ASM) lies in the Philippine Sea at the west of northern Palau-Kyushu remnant Arc. The basin represents a right-angled triangle as estimated by its name. The basin is quite significant for the better understanding the history of the Philippine Sea and mutual relation between them because it occupies the location between Palau-Kyushu remnant Arc and old structures such as Amami Plateau, Daito and Oki-Daito Ridges.

Topography of the ASB shows rather flat surface by sediments with several channels and knolls. The depth of ASB is gradually shallower toward the Palau-Kyushu remnant Arc. However the depth is deeper than the PKR but shallower than the western adjacent basins. Two notable linear escarpments called Kita-Amami Escarpment and Minami Amami Escarpment are bounded the basin from the basin west. Single channel seismic profiles across the basin from east to west of the Hydrographic Department represent a more than 2 seconds thick sediment piles cover the basin with several notable strong reflectors. The sediment piles do not show remarkable deformation that means no strong deformation occurred after the deposition of the sediments. The correlation from the reflectors neighboring seismic profiles the age of the sediments is of Miocene-Eocene in age. The thickness of the crust beneath the basin is estimated about 6 km that is a possible oceanic crust exist underneath. The basement of the basin is cut by N-S trending normal faults. This seems that the basin changed from rift to ocean basin. The escarpments are thought to be normal fault and along these faults intrusive bodies are identified. Submersible Shinkai 6500 #337 dive was conducted at the southern part of the Minami Amami Escarpment climbing up the cliff. The observation of MAE represented that the steep slope consists of a combination of steep sand gentle slopes five times as long as the observed area, which are the step faults. Several rocks were collected at several stops and tuffaceous sandstones with volcanic ash at the lower part of the slope and basaltic rocks at the upper. The chemical composition of the basaltic rocks is alkali-olivine basalt and the Ar-Ar ages of basalts ranges from 40 to 42 Ma. These ages indicate that the reflectors observed in the seismic profiles are Eocene and the reflectors below the basalts are much older, possibly Cretaceous. Many rocks were collected by dredge hauls of the R/V Tansei-Maru and drilled by BMS system of the R/V Hakurei-Maru No.2. The analyses of rocks were not carried out but it will be expected to have fruitful results.

From the results above it is possible that the ASB started to pile up the sediments derived from the Palau-Kyushu remnant Arc since Eocene that means the ASB is an Eocene rift. This is similar to that of the Ogasawara Trough east of the present Izu-Bonin Arc that was a failed rift of the older Izu-Bonin Arc rifting. If the basin has cretaceous basin fill the origin of the ASB will be the same as the basin with oceanic crust around the Amami Plateau and we should have another model fro the formation of the ASB.