

## Geological structure and sedimentary layers in and around the Kyushu Palau Ridge

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The Kyushu Palau Ridge extends in a north-south direction with the length of more than 3000 km in the central part of the Philippine Sea. It is a remnant island arc rifted from the Paleo Izu-Ogasawara-Mariana Arc in Late Oligocene. A national project, 'Deep Sea Survey Technologies for Natural Resources in Japan' has been carried out since 1998, and many multi-channel regional seismic surveys were performed by JOGMEC (Japan Oil, Gas and Metals National Corporation) in the northern part of the Philippine Sea. The geologic structure and its relation to sedimentary layers in the Kyushu Palau Ridge were studied, using the results of the seismic surveys which cross the ridge.

The Kyushu Palau Ridge slightly changes its trend from NNW in the northern part of 24N to NNE in the southern part. In the northern part, the Kyushu Palau Ridge is as wide as 50km or more, while it is narrower than 50km in the southern part. The topography of the ridge is interrupted at around 25N, where the basement is almost flat or slightly concave.

The eastern side of the ridge is in contact with sedimentary layers in the Shikoku Basin across a fault, formed with the rifting of the Paleo Izu-Ogasawara and Mariana Arc. Though sedimentary aprons more than 2000m thick develop in the western side of the Kyushu Palau Ridge in the West Philippine and the Kita Daito basins, sedimentary apron of similar scale is not recognized in the Minami Daito Basin.

The Oligocene and Eocene sediments in the Kita Daito Basin and the Oligocene sediments in the Minami Daito Basin interfinger with the Kyushu Palau Ridge (acoustic basement). However the Eocene sediments in the Minami Daito Basin lie on the acoustic basement, and do not show any interfinger relation.

The different relations of the sedimentary layers to the Kyushu Palau Ridge among these basins suggest the different histories of these basins, along with two times volcanisms in the Kyushu Palau Ridge: the northern part of the ridge was formed by Eocene and Oligocene volcanic activities and the southern part was formed by Oligocene volcanic activity. As mentioned here, the origin and development of the Kyushu Palau Ridge could be clarified through the recognition of the relation between the ridge and the sedimentary layers in the adjacent basins.