

Deformation structures by the paleo-Zenisu Ridge subduction/collision in the eastern Nankai prism based on the submersible surveys

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Geologic survey using submersibles along the Tenryu Canyon in the eastern Nankai prism gave us various geologic information from 1997 of dive survey #42 of the ROV KAIKO through numerous dive surveys of Shinkai 6500 during YK03-03, YK05-08 and YK06-02. It has been thought that the eastern Nankai prism has had complicated deformation history due to the paleo-Zenisu Ridge subduction/collision of several times.

This paper reports in detail the geology of the Nankai prism along the Tenryu Canyon based on the submersible surveys by outcrop observation and rock sample measurements being conducted from 1997. We determine the zones of the Nankai prism based on the physical, mechanical and magnetic properties and radiolarian microfossil ages, and discuss its growth process. Furthermore, we will discuss the deformation and recovery processes of the eastern Nankai prism due to subduction/collision of the paleo-Zenisu ridge.

The Nankai prism has been investigated using ODP cores by drilling vessel and using seismic images by research vessels so far. By those combination studies, we have revealed micro and macro geologic structures of the Nankai prism using the ODP cores and seismic images, respectively.

On contrary to the off-shore, physical exploration (including seismic survey), boring and ground survey have been performed to investigate the geologic structures on shore. In particular, ground survey plays an important role in interpretation for results of the physical exploration and boring cores. Those interpretations have been done based on the results of the ground surveys.

At this point, our submarine surveys executing so far along the Tenryu Canyon using submersibles correspond to the ground surveys on shore. We believe that our submersible surveys play an important role in the interpretation for the seismic images and ODP cores as well as on shore surveys.