Evolution of the Eocene accretionary complex of the Shimanto terrane in the southeastern Kyushu, Southwest Japan

Makoto Saito[1]

[1] G.S.J., AIST

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I have examined the stratigraphy and tectonics of the Eocene accretionary complex(Hyuga Group) in the Shimanto terrane in southeastern Kyushu in detail. As a result, I have recognized that the oceanic plate stratigraphy was composed of Early Eocene siliceous mudstone, early Middle Eocene red mudstone, middle Middle Eocene trench-fill turbidite on pre-Eocene oceanic plate, and that Late Eocene siltstone covered the Middle Eocene accretionary complex in Late Eocene time. In this stratigraphy,the Early Middle Eocene red mudstone were accompanied with basalt and the acidic tuff which was supplied from a continental margin. And then I have recognized that the activity of basalt and the deposition of red mudstone occurred close to a tranch. No accretion was occurred at the Hyuga Group before Middle Eocene time. And then the rapid accretion was occurred under supply of coarse terregenous sediments at middle Middle Eocene time when the moving direction of the Pacific Plate changed.

As the Hyuga Group has same geologic structure as the chert-clastics complexes(Kimura and Hori, 1993) in Jurassic accretionary complexes in Japan, the Hyuga Group has been formed under the same accretionary process as them, i.e. almost sediments of the Hyuga Group was detached at red mudstone of early Middle Eocene in age from oceanic plate, and red mudstone and upper middle Middle Eocene terrigenous sediments have formed imbricate structure.

The reconstructed stratigraphy of the Hyuga Group suggests that the Hyuga Group has been formed by the subduction of Phillipine Sea Plate with no sea mounts, which formed large scale of melanges in accretionary complex.

The deposition of Intra-arc or fore-arc sediments had started since Middle Eocene time in Kyushu in relation to the rapid evolution of the Hyuga Group.That implies that the evolution of Hyuga Group promoted the formation of intra-arc or fore-arc basin.