



Continental tilting oscillation behavior of the Kibi Plateau Block in the active Japan Arc through Paleogene to Recent

Shigeyuki Suzuki (1), Hajime Tanaka (2), and Makoto Yanagida (3)

(1) Okayama University, Faculty of Science, Department of Earth Sciences, Okayama, Japan (zysuzuk@cc.okayama-u.ac.jp),

(2) Fukken Consultant Co., Ltd., Okayama, Japan, (3) Hanshin Consultants Co., Ltd., Tokyo, Japan

The Kibi Plateau area distributes between northern uplifting Chugoku Mountains and southern subsiding Seto Inland Sea in western Japan. The area which is characterized by uplifted peneplain, stretches about 180 kilometers from east to west and 60 to 80 kilometers from north to south. The Carboniferous to Jurassic successions and the Late Cretaceous rhyolite and granite occupy the area. Paleogene valley fill fluvial deposits of conglomerates (Kibi Group) have narrow but numbers of north to south distributions. The distribution of the Middle Miocene shallow marine deposits (Bihoku Group) related with the topography of the peneplain. The Miocene deposits remain sporadically in the bottom of gentle valley of the peneplain as thin veneer (10 to 100m in thickness) and covers basement and the Kibi Group.

The stability of the Kibi Plateau area is proofed by the preserved distribution of paleo-river of the basin of the Kibi Group. The Paleogene Kibi Group is characterized by moderately sorted rounded to subrounded pebble to cobble sized conglomerates. Degree of consolidation of the conglomerates is low. Sandstones remain as bar top deposits. Channel structures and imbricated structures of clasts suggest that the Kibi Group was deposited in braided river. The narrow valley (100 to 500m in width) geometry of basins are reconstructed. The maximum depth of valley is up to about 200m. Well preserved paleo-rivers continue up to about 40 kilometers. Occasional tuff beds are intercalated. Measurement of fission-track dating were analyzed and events of valley fills in 27 to 28, 30, 34 to 35, 55, 61 to 65 Ma are estimated. The reconstructed distribution of paleo-rivers are little faulted and disturbed which suggests that the crust of the Kibi Plateau is stable. The paleo-rivers have north to south direction and every paleo-current is oriented to the south. It indicated the crust was tilted to the south.

The distribution of Middle Miocene Bihoku (Katsuta) Group reflects paleogeography. Gulfs, islands, inlets are reconstructed. Most of the inlets are facing to the north and the distribution of the marine Miocene extend to the north. Northern end of the Miocene is cut by faults running southern margin of the Chugoku Mountains which started to uplift Quaternary. The paleogeography during the deposition of the Miocene reveals that the marine was open to north when the Japan Arc was separated and drifted from the Eurasian Continent. During the event, the crust was tilted to the north.

In Quaternary time, recent rivers flow to the southern Seto Inland Sea. It is concluded that the crust of the Kibi Plateau have been keeping stable continental behavior and oscillated with EW trending axis during Paleogene to Quaternary even the Japan Arc was drifted from the continent.