

North Fossa Magna as a right-lateral rift zone between NE and SW Japan during Japan Sea opening

Masaki Takahashi[1]

[1] GSJ,AIST

Paleomagnetic investigation revealed that Southwest Japan rotated clockwise, whereas Northeast Japan rotated counter-clockwise during the Japan Sea opening. Tectonic deformation between these two arcs is still controversial because thick Quaternary sediments cover up the basement rocks in the Kanto Plain. Most of all geologists believe that the pre-Neogene basement rocks are well correlated between SW and NE Japan, which means that no major lateral displacement was occurred during the Japan Sea opening. To clarify the arc-scale deformation during the Japan Sea opening, chronostratigraphic distribution of the lower to middle Miocene volcanic as well as sedimentary rocks were compiled in the Kanto district. The most important geologic character in the Kanto district is a discontinuity along the Tonegawa Tectonic Line, eastern margin of the North Fossa Magna. The volcanic rocks are developed in the north side of this large scale underground fault, whereas thick marine sediments were deposited in the south side. In addition, there is a great gap of the early Miocene volcanic front between the both sides of the North Fossa Magna. Therefore, a large scale right-lateral displacement should have occurred during the Japan Sea opening. More than several thousand thick sediments in the North Fossa Magna can be interpreted as they were deposited in the right-lateral rift zone between SW and NE Japan during the Japan Sea opening. This leads us to conclude that the pre-Neogene basement rocks should have been displaced in the Miocene time along this right-lateral Tonegawa Tectonic Line, which implies that previous models related to the correlation of the basement rocks between SW and NE Japan should be reconsidered.