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Analysis of the Tertiary Eoil and Waup Sedimentary Basins in the Southeastern Part of Korean Peninsula

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Large- and small-scale Tertiary sedimentary basins distribute in several areas along the southeast coast of Korean Peninsula. These basins are important for understanding tectonics of the Sea of Japan (East Sea) and development of the Eastern Asian continent in the Cenozoic. Accordingly, we examined the NE-striking boundary faults, stratigraphy and structures of the basin-filled strata, and paleocurrent of the Eoil and Waup basins, in order to become clear the formation process of these basins. The two basins are located in the eastern part of the Ulsan Fault Zone and the Yansan Fault Zone and in Eoil and Yangbuk areas of Kyungju city, west of the Sea of Japan. Geology of this area is composed mainly of Cretaceous Sedimentary rocks, and Tertiary volcanic and sedimentary rocks. The Janggi Group of the Eoil Basin is classified into five formations, while the Bomgokri Group of the Waup Basin is divided into four formations, based on our detailed geological mapping and dating data (e.g., Jin *et al.*, 1988). The strata of the Eoil basin have generally strikes of N-S to N25^{c}ircE and dips of 15-30°WNW, while those of the Waup basin have the strike of N50-60^{c}ircE and dip of 16-30^{c}ircWNW. The boundary faults are characterized by east-dipping normal faults. Therefore the Eoil and Waup basins are thought to have been formed as half graben by the extensional tectonics, which was closely related to dilation movement of the Sea of Japan. On the other hand, paleocurrents were analyzed at nineteen sites by measurement of the long axis direction of clasts of the basin-filled conglomerate. Within the Eoil basin, the supply direction of the sediments is generally toward SW and NW, while in the Waup basin, that is from west to east. This indicates a possibility that the supply of the sediments changed from east to west due to the opening of the Sea of Japan. Concerning the formation of these basins, the following three stages are thought. In the first stage, the Fault with a normal slip sense was developed by extension during the early Miocene (20Ma). So, the formation of the basins was started in this time. After that, the boundary faults developed more and filling of sediments of the Eoil basin started. In the second stage (∼18Ma), the Eoil basin was filled up by sedimentation and volcanism. In the third stage (∼16Ma), the Waup basin was further filled up by sedimentation and volcanism. And, the present basin configuration was produced by erosion.