

**Geometry and kinematics of the structures developed in the Oseosan-Seongju area,
Chungnam Basin**

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The Chungnam Basin, located in the western Gyeonggi Massif, is an important area to investigate the Mesozoic basin evolution of the Korean Peninsula. Among those, the Oseosan-Seongju area, situated in the eastern part of the basin, preserves the NNE- to NE-trending high-angle reverse faults, low-angle thrusts as well as associated NNE-NE or SSW-SW trending folds. This study aims to understand the detailed structural geometry and kinematics of the Oseosan-Seongju area to interpret the Mesozoic evolution history of the western Gyeonggi Massif.

To better constrain the structural geometry and kinematics of the basin, the composite structural profiles using down-plunge projection were constructed based on detailed geological mapping in the Oseosan-Seongju area. We also conducted kinematic analyses on the major contractional structures to interpret their movement history. The kinematic analyses along the basement-sedimentary cover interface show the sequential changes in transport direction from southeast to northwest, suggesting the characteristics in the kinematic evolution of the basement-involved inversion tectonics during contractional deformation stage. The results further indicate that the spatiotemporal evolution of the basin might be controlled by the initial basin geometry and inherited extensional structures.

Keyword : Inversion-related structures, Down-plunge projection, Kinematic analyses