



## The back-arc closure of the Ulleung Basin, East Sea (Japan Sea) and tectonic implications

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Structural mapping and cross-section restoration reveal that the back-arc closure in the Ulleung Basin, East Sea (Japan Sea) began in the earliest Middle Miocene (ca. 15 Ma) and caused compressional deformation in the southwestern margin of the basin that has propagated southwestward from the Dolgorae to the Gorae structures. The accelerated convergence of the young (< 20 Ma) and hot Shikoku Basin lithosphere into SW Japan at the culmination (15 Ma) of the regional plate reorganization induced flat subduction along the Nankai Trough. The resultant strong interplate coupling probably led to tectonic switching from back-arc opening to back-arc closure in the Middle Miocene. The NE-SW trending Dolgorae structures indicate NW-SE or N-S compression, orthogonal to the direction of convergence along SW Japan, whereas the younger, NW-SE trending Gorae V structure indicates NE-SW or E-W compression. This change in stress regime may be due to the eastward-movement of the Amur plate that began in the Pliocene.