

Preliminary study on the Structural Interpretation of the Dolgorae Thrust developed along the southern margin of the Ulleung Basin, East Sea of Korea

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The Ulleung Basin, located in East Sea of Korea, has been classified by back-arc basin in previous studies. The basin was formed related to the subduction of the Pacific plate underneath the Eurasian Plate in late Oligocene. The Ulleung Basin has been experienced compressional deformation since late Miocene in relation to the collision between Eurasia, Philippine, and Pacific Plates. It might reflect the change in basin evolution from extensional to compressional stages. The Ultima Esperanza District, Chile is an example of a transition from back-arc to foreland basin development (Terry J. Wilson, 1991).

The stratigraphy and structure of the Dolgorae fold-thrust belt developed along the southern most Ulleung Basin has not been clearly confirmed, because of complex structures. The big data including 2D/3D seismic and wells of the area have been reinterpreted using new formation top by KNOC (2019) to identify geometry and kinematic interpretation. The geometry of the Dolgorae-III thrust preserved in the northeastern Dolgorae fold-thrust belt is considered to be developed as a detachment cored fault-propagation fold (Kwon et al., 2017). The other thrusts in the Dolgorae fold-thrust belt will be interpreted for identifying geometry using reinterpretation of the seismic data, and the results from which will be useful for better understanding of the structural and tectonic evolution of the Ulleung Basin at its southern margin.

The results from this study might also help to find new oil and gas potentials by considering the spatial and temporal changes in fold-thrust belt salient and their relation the structural traps of the Dolgorae fold-thrust belt in East Sea of Korea.

Keywords: basin evolution, structural interpretation, Ulleung Basin, Dolgorae Thrust, salient, East Sea of Korea