

Preliminary study on the Geological Boundary between the Joseon and Okcheon supergroups in Jecheon area of the Okcheon belt, Korea

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The Okcheon belt is a NE-SW trending fold-thrust belt, where rocks of various ages from Precambrian to Cretaceous are preserved between the two Precambrian massifs in the southern part of the Korean peninsula. There have been many studies concerning structures, deformation sequences and stratigraphy of each portion, but they are still insufficient to unravel the geological relationship between the two. The study area, Jecheon, is located in the center of the Okcheon belt, where the Cambro-Ordovician Joseon Supergroup and the age-unknown Okcheon Supergroup rocks are in contact with one another. The Joseon Supergroup mainly consists of fossiliferous carbonate with siliciclastic association. On the other hand, the Okcheon Supergroup is composed of metapelites, metapsammites and metavolcanics. These are inadequately restricted of their depositional ages due to a lack of fossils.

The purpose of this study is to elucidate the structural geometry of the Jecheon area including both supergroups and the geological boundary between them. In order to examine the structural geometry of Jecheon area, “Down plunge projection”, a method of creating a section perpendicular to the hinges of several folds, was performed using the orientation data obtained from the reconnaissance field survey and the contact data from the pre-existing geologic map. The result confirms that the limestone lies structurally on the top of the boundary between the Yongam formation and the limestone. The result of the field survey data provides that the Yongam formation contains carbonaceous materials, which suggests that, the boundary might be a fault or an inverted layer. In addition, kinematic indicators such as drag folds and asymmetric folds with various scales which indicate top-to-the-east or top-to-the-southeast shear sense are observed. This together with, additional field survey and SHRIMP U-Pb age dating data are necessary to figure out the structural geometry of the study area. The results obtained by this study will help to understand the structural relations of the Okcheon and Taebaeksan area of the Okcheon Belt.

Keyword : Joseon Supergroup, Okcheon Supergroup, Jecheon area, Down plunge projection,

SHRIMP U-Pb zircon age dating