Preliminary interpretation of the deformation history around Ilgwang fault, SE Korea

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Abstract

The Yangsan Fault System is composed of several NNE-striking active faults developed in the South Eastern part of the Korean Peninsula. The development of these faults related to the opening of the East Sea. Among those faults, the structural characteristics and paleostress conditions for the Yangsan and Ulsan faults are relatively well documented. However, the structural characteristics and paleostress for the other faults such as Dongnae and, Ilgwang faults are relatively less defined. In this present study, we studied the paleostress history of the Ilgwang fault on the basis of cross-cutting relationships between shear and tensile fractures observed within the granitic body developed in the eastern part of the Ilgwang fault. Based on the detailed structural, geometrical and kinematical analyses of brittle structures, we recognized multiphase stress changes along the fault. Based on the cross-cutting relationship between variable structures, ENE-WSW → NW-SE → NE-SW trending maximum horizontal compressive stress changes are determined. Also, a conceptual model suggesting the paleostress changes of the developed minor structures were presented, which is well matched with the past and ongoing tectonic process towards development of major structures along SE Korean Peninsula.