Petrology of enclaves in the granite around Bangeujin, Ulsan

Lee, Joon-Dong, Kim, Jong-Sun and Choi, Bo-Sim

Department of Geology, Pusan National University(kjsun@hyowon.pusan.ac.kr)

We studied about petrological characteristics of the Bangeujin granite belongs to porphyritic biotite granite, petrogenesis of the enclaves in the granite and contact metamorphism of the sedimentary rock around the granite. The enclaves in the granite are concentrated in the eastern part of the Mipo fault but in the western part, these are rare. The enclaves can be divided into three types according to the petrographical characteristics. These three types are: (1) enclaves having few phenocrysts and fine grained igneous texture and ellipsoid is predominant; (2) enclaves similar in petrographical characteristics and having many phenocrysts considered as being originated from the granitic host rock; and (3) enclaves corresponding to granite in mode composition, having large phenocrysts and of which the matrix is corresponding to fine granular. First two types are correspond to mafic microgranular enclaves and the third is corresponds to felsic microgranular enclaves. In addition, the felsic microgranular enclaves capture the mafic microgranular enclaves. The fact that the compositions of biotite and plagioclase in the enclaves are nearly identical with those of biotite and plagioclase in the granitic host rock is considered as the results of supporting magma mingling. The major elements show well the linear variations as the SiO_2 content increases. The rare earth elements content decrease with increasing SiO_2 content, interpreted as the results of magma mingling. Therefore, we can conclude that the Bangeujin granite captured the felsic microgranular enclaves formed by collapse of early chilled margin during the crystallization and there was magma mingling by the injection of the mafic magma after that time. In addition, these aspects are predominant in the eastern part of the Mipo fault is considered as related to the fault movement.