

II 2**FELSIC AND MAFIC MAGMA INTERACTIONS IN THE YUCHEON GRANITE**

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The petrographic and geochemical studies have been conducted to understand the feature of the Yucheon granite and its magma mixing effect. The Yucheon granite is fine to medium grained biotite granite with some porphyritic to equigranular feature. The granite contains abundant enclaves, mainly mafic microgranular enclave (MME). The MME was formed by injection of mafic magma into the granitic magma. The injected magma formed the microenclave, MME and hybrid quartz monzodiorite. These all three types are distributed mainly in the porphyritic granite, composing monogenic enclave swarms and showing magma mixing evidences. Field and petrographic evidences include chilled margins against the host granite, back-veining in the enclaves, lobate to crenulate contact, the presence of ocelli quartz and feldspar as megacrysts with or without mafic mineral rim, poikilitic quartz/K-feldspar, rapakivi feldspar, acicular apatite and biotite, oscillation zoning of plagioclase etc. A few miarolitic cavity and micrographic texture in the enclave swarm would be formed by two magma interactions.

Geochemical data showing good linear trends in the Harker diagrams also support magma mixing events. Variation of major element in the MME is almost constant from core to rim. The trace and rare earth element data show the effect of interactions between mafic and granitic magma. Total REE concentration in the granite is more abundant than in the MME. But the difference in abundance decrease to almost equal at the contact zone. The Yuchon granite and enclaves exhibit mineralogical and geochemical features have calc-alkaline and I-type granites. Biotite and actinolitic hornblende in the granite and enclave are homogenized, respectively:

Together with these results, we conclude that the mafic magma (at least some more mafic than quartz monzodioritic magma) injected into the granitic magma when it was largely composed equal amount of crystal mush and its residual liquids.