New SHRIMP U-Pb zircon ages and petrochemistry of the Buncheon granitic gneiss, northeastern part of Yeongnam massif, South Korea

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SHRIMP U-Pb zircon ages of the Buncheon granitic gneiss, northeastern part of Yeongnam massif, South Korea were newly determined. Two rock samples gave SHRIMP ages of 1972.5 +/- 3.9 Ma and 1968.3 +/- 2.6 Ma, with average of 1970 Ma. These ages are slightly younger than already reported Rb-Sr and Sm-Nd whole rock ages (2002-2097 Ma). Only one zircon sample of 31-06 rock sample showed concordia age of 2327 Ma which is clearly older than the other zircon samples. This age is similar to the U-Pb zirco ages of the Icheon granitic gneiss in the north. The presence of this older zircon indicates that the granitic magma was contaminated by older crustal materials.

The Buncheon granitic gneiss has SiO2 wt.% of 71-80 %, which corresponds to typical granite. The Harker variation diagrams show the crystal fractionation of biotite, plagioclase and K-feldspar. This characteristics is concordant well with the REE paterns and imcompatible element spider diagrams. The Sr and Nd isotope data are concentrated in 0.7080 and 0.5099, respectively. All these geochemical data may conclude that the Buncheon granitic magma was derived from isotopically homogeneous lower to middle crustal materials followed by crystal fractionation.