Polymetamorphism of Ogcheon Supergroup in the Miwon Area, central Ogcheon metamorphic belt, South Korea

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Metasedimentary rocks in the Miwon area of the central Ogcheon metamorphic belt are composed of schist, phyllite, slate, quartzite, and crystalline limestone, together with minor mafic and felsic metavolcanic layers. Turbidite layers consisting of sandmud couplet lithofacies are newly found in the central part of the study area. These layers are traceable along the strike to a distance of c. 20 km, and indicate the right-side up stratigraphic sequence. All of metamorphic rocks have experienced four deformation events (D1D4), and are divided into two litho-tectonic units: structurally upper Pibanryeong unit and lower Poeun unit. Peak regional metamorphism of the mediumpressure type is associated with progressive deformation D1D2, that has produced southeastward stacking of ductile nappes.

Mineral assemblages of the Poeun unit are represented by lowgrade assemblages including biotite and chlorite, whereas those of Pibanryeong unit by kyanite, staurolite, garnet, and biotite. Retrograde minerals include chlorite and white mica in both units and margarite in the Pibanryeong unit. Subsequent to regional metamorphism, thermal flux during the Mesozoic magmatism produced sillimanite, andalusite, cordierite, staurolite, garnet, biotite, and white mica in the contact aureole. Although thermal overprint is significant in some specimens, regional metamorphic condition could be retrieved by analyzing zoning patterns of garnet. PT conditions for regional metamorphism of the Pibanryeong unit are in the range of 4.38.0 kbar and 510620C, and corroborate our previous result in the JeungpyeongDeokpyeong area.