

TILT AND EMPLACEMENT PRESSURE OF THE JURASSIC GRANITES IN THE YOUNGNAM MASSIF, KOREA.

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Hornblende geobarometry has been widely applied to estimate the emplacement depth of the Jurassic Youngju, Andong, and Kimcheon Batholith in the Youngnam Massif, South Korea, for the effects of postemplacement tilting. These granites, with an elongate southwest direction, are parts of calc-alkaline pluton that intruded Youngnam Massif composed of the metamorphic rocks. Geobarometry was done on twenty two samples from the Youngju granite, ten samples from Andong granite, and twelve samples from Kimcheon granite, using the composition of hornblende rims coexisting with the full mineral assemblage required for pressure determination. Amphiboles in the three granitic rocks range from edenite to pargasite to ferropargasite with pressure increase. When the calculated using the equation of Schmidt (1992), the depths of crystallization of the Youngju granite range from 5.6 to 7.9kb and those of the Andong granite are from 5.5 to 7.5kb and those of Kimcheon granite range from 4.1 to 5.3kb. Of these plutons, hornblende barometry results the Youngju granite indicate that the depth of emplacement across the batholith increase systematically from about 6kb in the northwest to about 7.5kb in the southeast. Andong granite shows non-systematic distribution of pressure estimates. Barometries of Kimcheon granite are almost consistent pressures. The pressure difference of about 1.5kb across the southeastern margin and variation in pressure within the Youngju granite can be explained by a model combining late postemplacement upsurge of a deeper part of the pluton in the south with tilting of the batholith by Yecheon shear zone.