佐藤公則　　高ｴﾈﾙｷﾞｰ加速器研究機構物質構造科学研究所

（受入教官：桂智男）

Experimental investigation on dolomite dissociation into aragonite + magnesite up to 8.5 GPa

Abstract. We carried out high-pressure and high-temperature experiments on the composition with CaMg(CO3)2 to determine the phase boundary of dolomite = aragonite+ magnesite up to 8.5 GPa and 1200°C, using a 6-8 type multianvil high-pressure apparatus employing quenching technique. Dolomite dissociates into aragonite+magnesite in the higher-pressure and lower temperature conditions and the phase boundary of dissociation is described by a linear equation P (GPa) = 1.75 + 0.0061T (°C). Above conditions of 7 GPa and 1000°C, the equilibrium phase boundary has been established by confirmation of the reverse reaction of crystallization of dolomite from CaCO3 and MgCO3.

This study suggests that the decomposition reaction of dolomite into aragonite+ magnesite could be a index reaction of phase transformation following quartz-coesite and graphite-diamond to estimate conditions of metamorphism of dolomite-bearing ultrahigh-pressure metamorphic rocks.

(submitted to E.P.S.L)