

SMP055-P09

Room: Convention Hall

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An experimental study of the normal grain growth of quartz in agate and flint and its implication to natural examples

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Annealing experiments on agate and flint were performed to investigate normal grain growth of quartz in both alpha and beta regions. The experiments were conducted using a piston-cylinder apparatus (MK65S) in Shizuoka University at 700 to 800 degree C and 0.5 to 1.0 GPa for 0 to 66 hours. Average grain size of quartz in both materials increased from a few to a few tens of microns with time. However, the grain growth rate of quartz was faster in flint than in agate. We determined activation energies of the normal grain growth for both alpha and beta quartz regions in agate, which were distinctly larger than previous studies. We applied our results to metacherts in Ryoke metamorphic belt and found that estimated grain growth rate for quartz in the metacherts was quite compatible with those determined in agate.

Keywords: quartz, grain growth, annealing experiment, Ryoke metamorphic belt, metachert