
SMP055-10

Room: Function Room B

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Symbolic dynamics sequence along sealed shear cracks in the metamorphic rocks

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Multi-component nonlinear dynamical equations contain almost always chaotic solutions of some variables. In the system of the metasomatic and metamorphic rocks, important reactions should have higher order term of ionic concentrations in aqueous solution together with diffusion terms because of solubility constraint. Then, the mineral compositions in these rocks does not contain a stable assemblage although natural mineral assemblages are controlled by phase rule apparently. On the other hand, these rocks also show clear banding structures derived from enhancement of concentration contrast of rock chemistry. The banding structures of mineral compositions should be considered by the model of symbolic dynamics because ionic concentrations in the aqueous solution in the grain boundary are to be governed by diffusion reaction equation forming proper mineral compositions.

Keywords: Symbolic dynamics, shear crack, mineral banding, fluid flow