

The mobility of iron during anoxic dissolution of biotite.

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There are two models for the evolution of the Precambrian atmosphere; anoxic and oxic. The O₂ concentrations in the Precambrian atmosphere have been estimated based on the distribution of iron in the weathering profiles. It is important to examine Fe-bearing weathering products under an anoxic condition for a better understanding of the O₂ evolution in the Precambrian.

Biotite was dissolved in a glove box with a low O₂ concentration and resultant solutions and secondary minerals were examined. For an anoxic dissolution experiment, secondary minerals were found at the edge surfaces, but the amount was less compared to an oxic experiment. In contrast, more Fe²⁺ was observed in the solution of the anoxic dissolution experiment than that of the oxic experiment.