

SCG082-P13

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Numerical modeling of crystallization and settling in a convecting magma chamber: application to Kiglapait intrusion

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Compositional evolution of a magma chamber is controlled by both thermodynamic and dynamic processes. We developed a comprehensive model of a convecting magma chamber, including thermal evolution (Huppert and Sparks, 1988), crystal settling (Martin and Nokes, 1988), and thermodynamics of crystallization (Ghiorso and Sack, 1995). The calculated spatial patterns of mineral proportion and composition agree fairly well with those of natural data from Kiglapait layered intrusion (Morse, 1979).

References

- Ghiorso, M.S., Sack, R.O. (1995), *Contrib. Mineral. Petrol.* 119:197-212
Huppert, H.E., Sparks, R.S.J (1988), *J. Petrol.*, 29, 599-624.
Martin, D., Nokes, R. (1988), *Nature*, 332, 534-536.
Morse, S.A. (1979), *J. Petrol.*, 20, 555-590.

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