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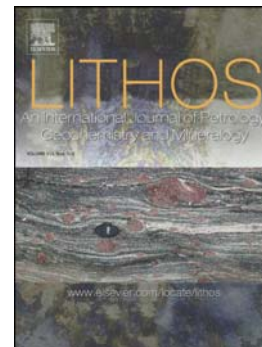
Phase equilibrium modelling of granite magma petrogenesis: B. An evaluation of the magma compositions that result from fractional crystallization

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Phase equilibrium modelling of granite magma  
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compositions that result from fractional crystallization

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### Abstract

Several fractional crystallization processes (flow segregation, gravitational settling, filter-pressing), as well as batch crystallization, have been investigated in this study using thermodynamic modelling (pseudosections) to test whether they are able to reproduce the compositional trends shown by S-type granites. Three starting compositions comprising a pure melt phase and variable amounts of entrained minerals (0, 20 and 40 wt% of the total magma) have been used to study a wide range of likely S-type magma compositions. The evolution of these magmas was investigated from the segregation from their sources at 0.8 GPa until emplacement at 0.3 GPa in an adiabatic path, followed by isobaric cooling until the solidus was crossed, in a closed-system

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