

## **Lithium in felsic magmas: a volcanological perspective.**

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It is fascinating to see how lithium, a critical element used in various fields, can also have fundamental applications in volcanology. Volcanic eruptions are unpredictable natural disasters that can cause significant damage and loss of life. Understanding the processes that occur during magma ascent from the storage region to the surface is crucial for predicting the eruptive style and defining the volcanic hazard. Lithium, with its high mobility in silicate melts and crystals, can provide insights into these processes and serve as a geospeedometer.

The proposed review of current knowledge on lithium behavior in felsic magmas is important because the available data on this subject is largely incomplete. The synthesis of existing data on lithium crystal-melt and fluid-melt partition coefficients, isotopic compositions, and intracrystalline diffusion, for the melts and main crystals present in felsic magmas can help provide a better understanding of the processes that occur during magma ascent. Diffusional profiles of lithium and its isotopes can be used to investigate magma differentiation, degassing, ascent rate, volatile fluxing, and cooling. However, interpreting lithium data is not without its dilemmas, and this review should help shed light on these dilemmas and propose future directions for improving our knowledge on lithium behavior. In conclusion, the proposed review of lithium behavior in felsic magmas is an exciting area of research that can help improve our understanding of volcanic eruptions and ultimately contribute to better crisis management.