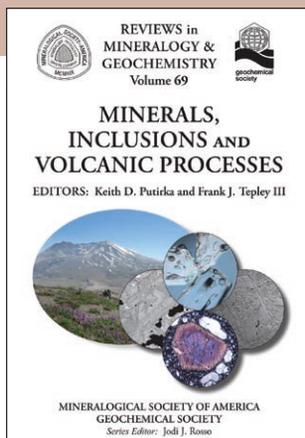


MINERALS, INCLUSIONS AND VOLCANIC PROCESSES²

If you are undertaking research in the field of volcanic petrology–geochemistry and you have decided to buy only one more book during the remainder of your career, buy this one and you will be glad that you did. Better yet, if you are a PhD student in this field and you would like to make your thesis advisor superfluous, read this volume carefully enough to fully digest the contents. He/she will be coming to you for advice and counsel. I can advocate the value of this volume with genuine conviction because I was privileged to be among the 210 people who attended the excellent short course organized and held by Keith Putirka and Frank Tepley III in late 2008 (see Meeting Report in *Elements*, June 2009). Frank and Keith assembled a stellar group of scientists to summarize the state of the art in a host of interlocking methods and fields of inquiry that depend critically on petrographic observations integrated with experimental and microbeam data. They did a fabulous job of inspiring these authors to adhere to a very high standard of quality during the preparation of their chapters for the accompanying *Reviews in Mineralogy & Geochemistry* volume.

The contents of this volume are encompassed by the following general topics: (1) kinetics in magmatic systems as they pertain to crystallization, diffusion, and magma ascent rates; (2) thermometry and barometry; (3) melt and fluid inclusions (hence, magmatic volatiles); (4) crystal size distributions; and (5) application of petrographic, chemical, isotopic, and fluid-dynamic modeling techniques to document crystal–melt dis-

2 Putirka KD, Tepley FJ III (eds) (2008) *Minerals, Inclusions and Volcanic Processes*. *Reviews in Mineralogy & Geochemistry* 69, Mineralogical Society of America, Chantilly, VA, ISBN 978-0-939950-83-6, i-xiv, 674 pp, US\$40, 25% discount for MSA and GS members



equilibrium (including U-series disequilibrium). Most of the chapters offer prudent suggestions about how such information can be used to elucidate and quantify magmatic processes.

One of the principle attractions of this volume is that the authors and editors went to considerable trouble to link the well-written and well-illustrated technical content to current problems in magmatic petrology. In some cases, they present the material in the form of a “user’s manual,” so that everyone from beginners to dinosaurs will be able to benefit directly and easily when implementing this information. Another welcome advantage is that each chapter is accompanied by a comprehensive list of references. I am confident that the breadth and depth of the state-of-the-art information contained in this volume will make it an essential resource for many years to come.

Viewed from a broader perspective, this volume is of some scientific importance because it demonstrates in a coherent and well-structured form the enormous quantity of extremely useful and accessible information carried in the “complexities” of magmas and their eruptive products. I would suggest that few, if any, of us could read this volume without assessing our own approaches to using the chemical, mineralogical, and isotopic compositions of igneous rocks to understand magma genesis and evolution. Has any of us fully exploited the potential of the qualitative and quantitative indicators carried by igneous minerals and their inclusions in combination with whole-rock analyses? The answer is up to readers of *Minerals, Inclusions and Volcanic Processes*, but I hope that a large number of igneous petrologists and geochemists will use the volume as an inspiration to arrive at a revised view of how they can improve our understanding of magmas and magmatic processes.

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