Diffusion in Minerals and Melts

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ON THE COVER: Top Left: A BSE image showing zonation of zircon (Zhang 2008, Geochemical Kinetics). Lower Right: Ar diffusivity in air, water, melts and hornblende, and heat diffusivity as a function of temperature (data are from various sources).

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FROM THE SERIES EDITOR

The chapters in this volume represent an extensive compilation of the material presented by the invited speakers at a short course on Diffusion in Minerals and Melts held prior (December 11-12, 2010) to the Annual fall meeting of the American Geophysical Union in San Francisco, California. The short course was held at the Napa Valley Marriott Hotel and Spa in Napa, California and was sponsored by the Mineralogical Society of America and the Geochemical Society.

At the MSA website, www.minsocam.org/MSA/RIM, the supplemental material associated with this volume can be found and the reader is encouraged to have a look at it. Any errata will also be posted there. The reader will also be able to find links to the electronic copies of this and other RiMG volumes.

Jodi J. Rosso, Series Editor
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PREFACE

Geologists often need to apply diffusion theory and data to understand the degree of mass transfer, infer temperature-time histories, and address a wide range of geological problems. The aim of this volume is to provide practitioners the necessary background and data for such applications. We have made efforts to present a comprehensive overview, with discussion and assessment of diffusion data in a broad range of rock-forming minerals and all geologically relevant melts. Extensive data tables are provided as online supplements (as well as at websites maintained by individual authors), both for general usage by readers, and for experimentalists and theoreticians in the field to develop greater understanding of diffusion and plan future research directions.

We would like to take this opportunity to thank the authors of individual chapters, and those who reviewed the chapters. The reviewers are: Don Baker, Harald Behrens, Bill Carlson, Michael Carroll, Fidel Costa, John Farver, John Ferry, Jiba Ganguly, Matt Heizler, Jannick Ingrin, Motoo Ito, David Kohlstedt, Ted Labotka, Chip Lesher, Yan Liang, Thomas Mueller, Jim Mungall, Martin Reich, Rick Ryerson, Jim Shelby, Frank Spera, Jim Van Orman, Yong-Fei Zheng, and anonymous reviewers.

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