Petrology: An Introduction to Igneous and Metamorphic Rocks and Processes

Dexter Perkins, University of North Dakota (April 2022)

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Folded Archean gneiss, Teton Range, Wyoming; photo is approximately 60 cm across

Contributors

This book was a team effort. In addition to the principal author, significant contributions came from Elizabeth Perkins, Rebecca May, Sarah Brandt, Morgan Rach, Paige Tibke, Douglas Perkins, and Kevin Henke.

Scope of This Book

Many excellent and comprehensive Petrology books are available in print today. They all contain about the same content. This book is somewhat different. For example, we have included more

volcanology. Overall, we have focused on rocks – how they form, where they form, and what they look like. We have included less thermodynamics, geochemistry, and petrophysics than in some other books.

Companion Book

If you find this book of value, you may wish to check out the companion Open Mineralogy text.

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Photo and Graphic Credits

The visuals, especially the photos, are one of the things that make this book what it is. As of March 2022, the book contains just about 1,000 figures. Most are full color photographs. Half the photos came from Wikimedia Commons or others websites where selfless individuals have made their material available under a Creative Commons license for educational purposes. Although we have put figure credits at the end of every chapter, a number of individuals deserve special recognition for all the terrific photos they have shared. A large number of rock photos came from James St. John and Siim Sepp. Many thin-section photos came from Alessandro Da Mommio and Frank Mazdab. Two or more images of various sorts came from: Woudloper, Chmee2, Kurt Hollocher, Arlette, Brocken Inaglory, Kurt Hollacher, Marli Miller, Mx Granger, Robert M. Lavinsky, alavignenet, Amcyrus, B. Domangue, C.E. Jones, Daniel Mayer, Didier Descouens, Ethan Baxter, Graeme Churchard, Kent G. Budge, Lysippos, Madereugeneandrew, Michael C. Rygel, Quentin Scouflaire, and Ra'ike. I am grateful to all these individual

for sharing.

Sources of Information

Most of the content of this book can be found in any number of other textbooks. In particular, I consulted the following (listed from newest to oldest) as I was writing: Principles of Igneous and Metamorphic Petrology (Philpotts and Ague, 2022), An Introduction to Metamorphic Petrology (Yardley, 2021), Earth Materials (Perkins et al., 2019), Essentials of Igneous and Metamorphic Petrology (Frost and Frost, 2019), Mind over Magma: The Story of Igneous Petrology (Young, 2019), Principles of Igneous and Metamorphic Petrology (Winter, 2015), Volcanoes: Global Perspectives (Lockwood and Hazlett, 2010), Petrology: The Study of Igneous, Sedimentary, and Metamorphic Rocks (Raymond, 2007), Mineralogy (Perkins, 2011), Mineralogy and Optical Mineralogy (Dyar et al., 2008), Petrology (Blatt et al., 2005), Metamorphic Phase Equilibria and Pressure-Temperature-Time Paths (Spear, 1993), Using Geochemical Data-Evaluation, Presentation, Interpretations (Rollinson, 1993).

Navigation and Web Browsers

To aid navigation, this book contains a robust table of contents that will always be present on the right side of your screen. The pages also contain many internal links. With the exception of some links in the last chapter, all pages in this book open in the same window. This means you use your browser’s back button/arrow to return you to where you started. But, different web browsers have different quirks. And many people have different default settings for their browsers. So, the bottom line is that you should try several browsers and use the one that works best for you. They will NOT be the same, and figure resolution and layout will vary depending on the browser used. Additionally, we warn that many tables will not render well on small screens, and not at all on cell phones.

Printing and PDF Versions

Many people have asked us to provide printable files or pdf versions of this book. This is not easily done because every chapter is a single web page. So there is no pagination. We have added buttons at the end of each chapter – similar to the buttons at the bottom of this page – for printing or creating pdf files, but the results are not very good. If anyone has a better plugin or suggestion, please let us know.

Ongoing Project

The nature of this kind of book means that it is always an ongoing project. Please send any comments or suggestions to dexter[dot]perkins@und[dot]edu.