
142-7 - AN ONLINE TEXTBOOK WITH INTERACTIVE TOOLS DESIGNED TO HELP UNDERGRADUATE STUDENTS LEARN IGNEOUS AND METAMORPHIC PETROLOGY

Abstract

Attendees of this online meeting are familiar with many communication applications and information-access opportunities of the internet. As educators constrained by a global pandemic, we have increasingly relied upon electronic media to reach our students. Rather than bemoan the limitations of remote instruction and learning, I suggest that we use this challenging time to imagine new ways to enhance student learning. By developing interactive tools specific to the material we want to teach for our disciplines, some useful features of online learning become evident. For several years I have been building a website with exactly this goal in mind. I have found ways to illustrate and explain difficult ideas in petrology by using the computing power of internet browsers to animate diagrams and make web pages respond dynamically to student readers. Petrology students need to learn to interpret rocks under the microscope. Imagine thin sections with phase maps and mineral compositions at the click of a mouse. We want students to read and interpret phase diagrams. Imagine phase diagrams that show mineral modes or chemical reactions in response to mouseover movements. Our students should learn to see patterns in geochemical data. Imagine variation diagrams or REE diagrams that respond instantly to axis or normalization choices for preselected datasets or to data uploaded by students from their own CSV files. Pages with these and other interactive features will be shown in this presentation and are available now for students to use. It is my hope that this online textbook will soon reside on the MSA website and that petrology teachers will contribute material (images, data, activities) that will enrich it for everyone. I am pleased to present this teaching-focused talk in a session honoring Peter Robinson, a Renaissance geologist with 3D eyes and headlights for extending field trips. Peter excelled as a scientist, but also as a teacher, mentor, colleague, and friend.

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